DOCKET: T2E/2560

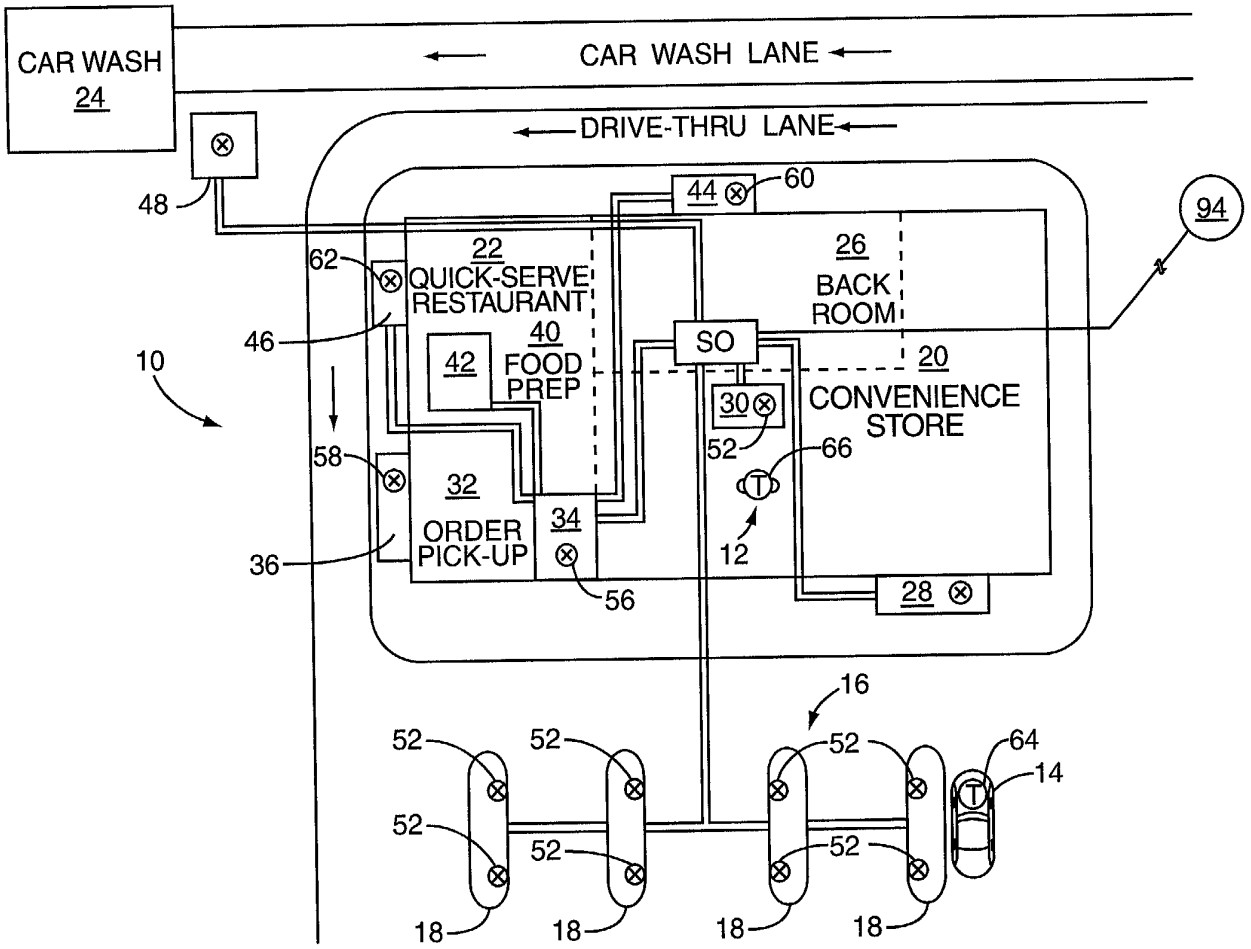

FIG. 1

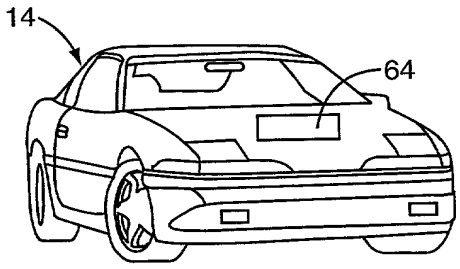

FIG. 2A

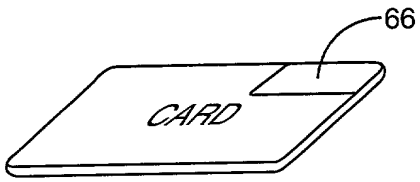

FIG. 2B

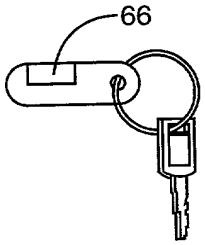

FIG. 2C

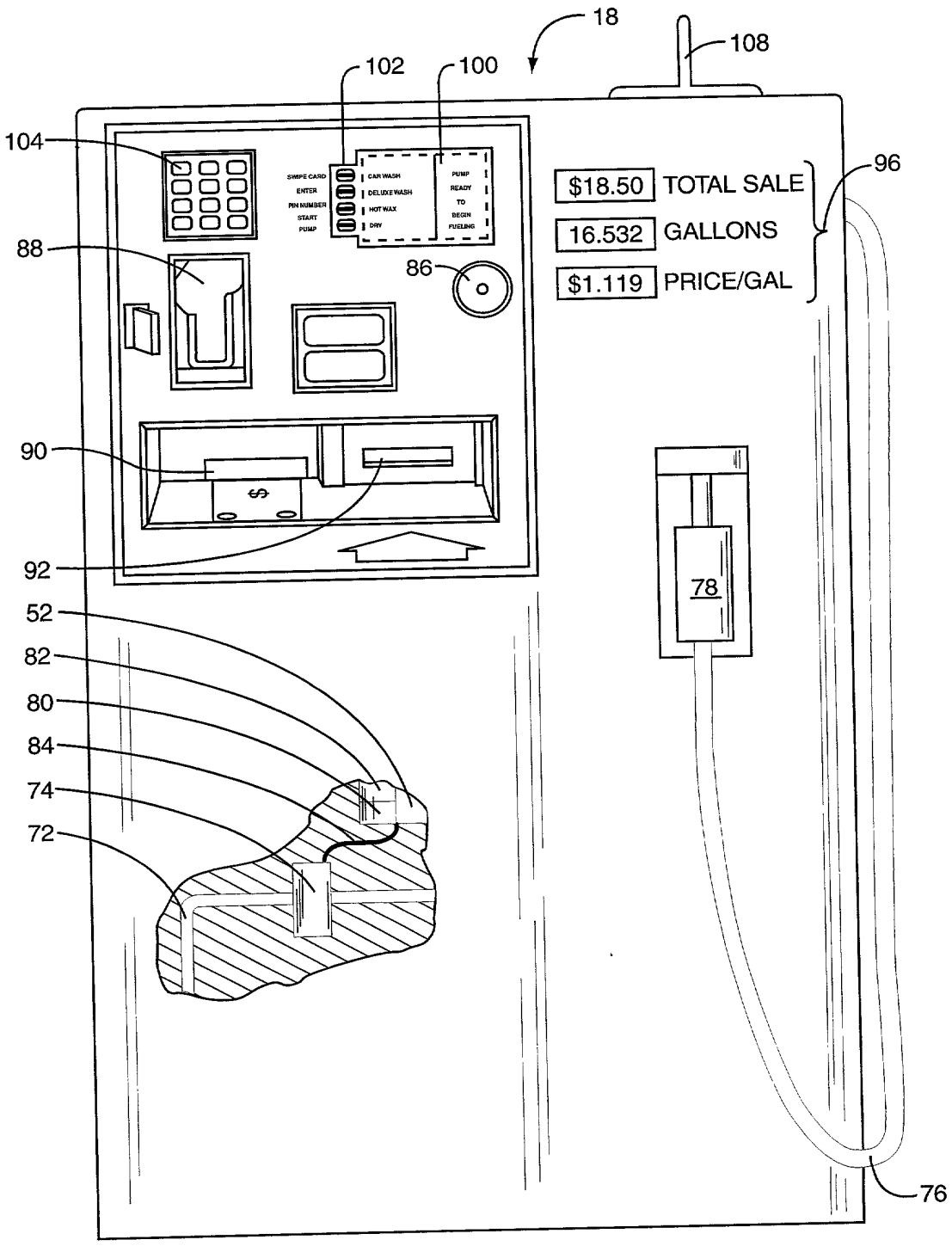
18
108
102
100
104
96
88
86
90
92
52
82
80
84
74
72
78
76
SWIPE CARD
ENTER
PIN NUMBER
START
PUMP
CAR WASH
DELUXE WASH
HOT WAX
DRY
PUMP
READY
TO
BEGIN
FUELING
$18.50 TOTAL SALE
16.532 GALLONS
$1.119 PRICE/GAL

FIG. 3

TOETHO" T2E/2E60

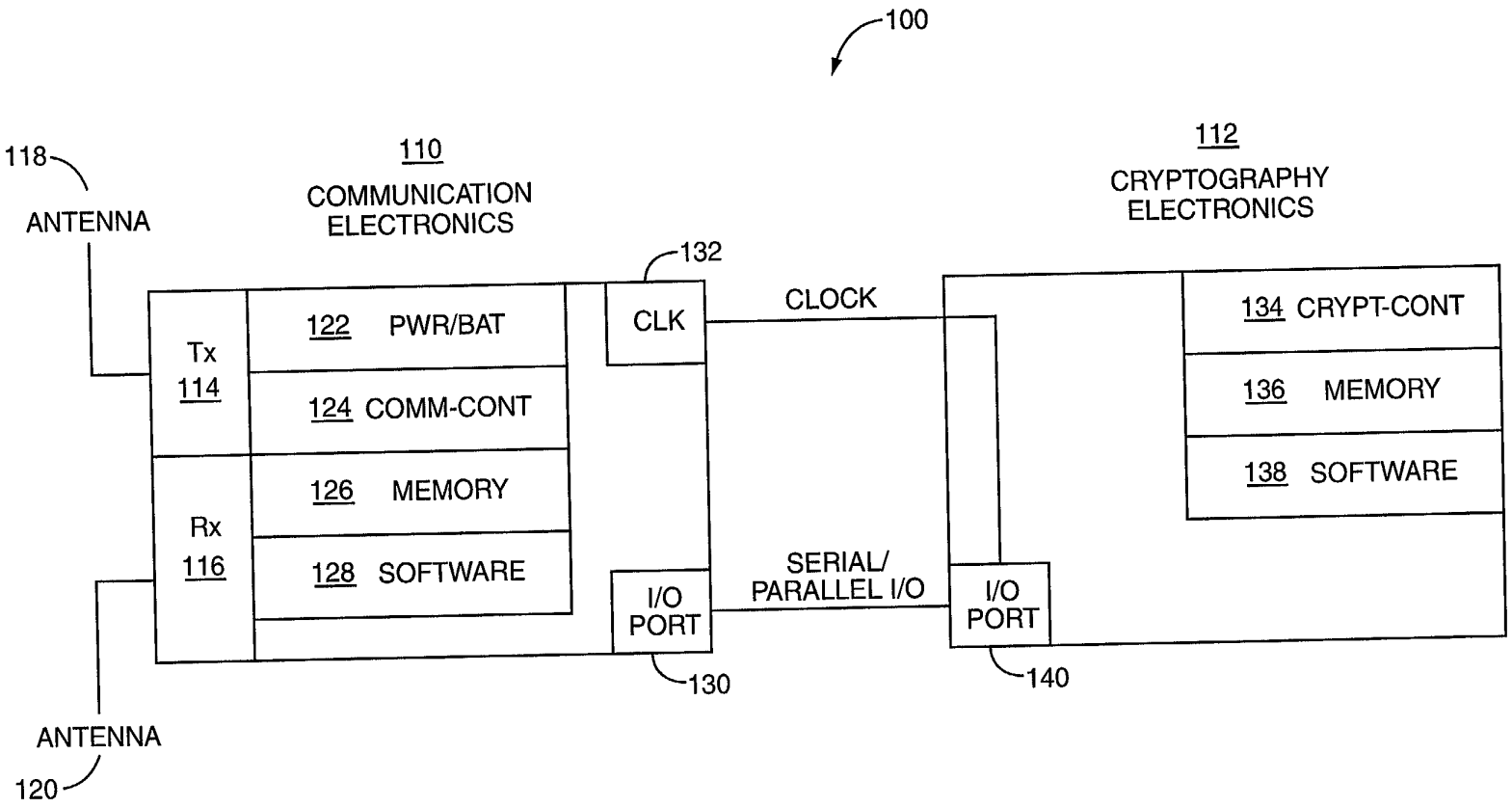

FIG. 4A

DETAILED DESCRIPTION

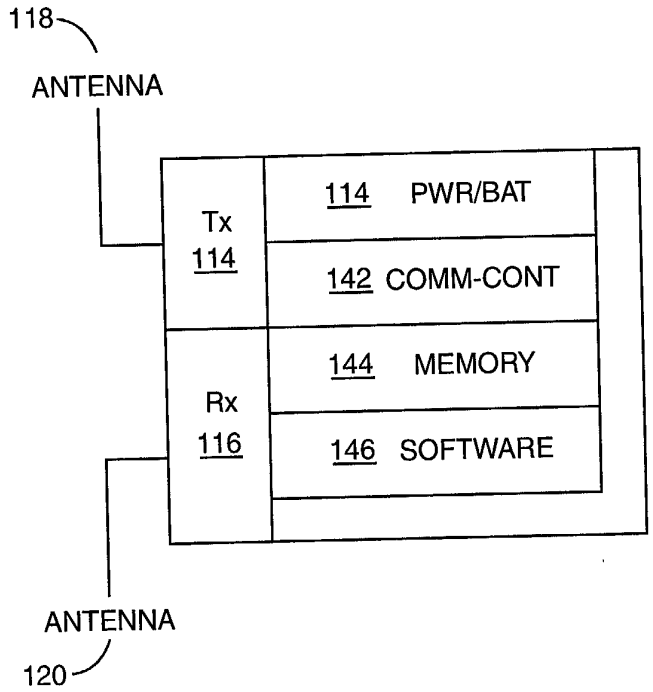

FIG. 4B

DISPENSER ELECTRONICS
AUDIO PROCESSOR 260
MIC 258
PRINTER 92
CENTRAL SITE CONTROL INTERFACE 146
CARD READER 88
CASH ACCEPTOR 90
108
108
KEYPAD 102
Rx 142
DISPENSER CONTROLLER 80
DISPLAY 100
Tx 144
AUDIO/VIDEO ELECTRONICS
INTERROGATOR
254
52
MEMORY 82
86
AUX. A/V SOURCE 156
THUMB PRINT IMAGER 264
CAMERA 262

FIG. 5

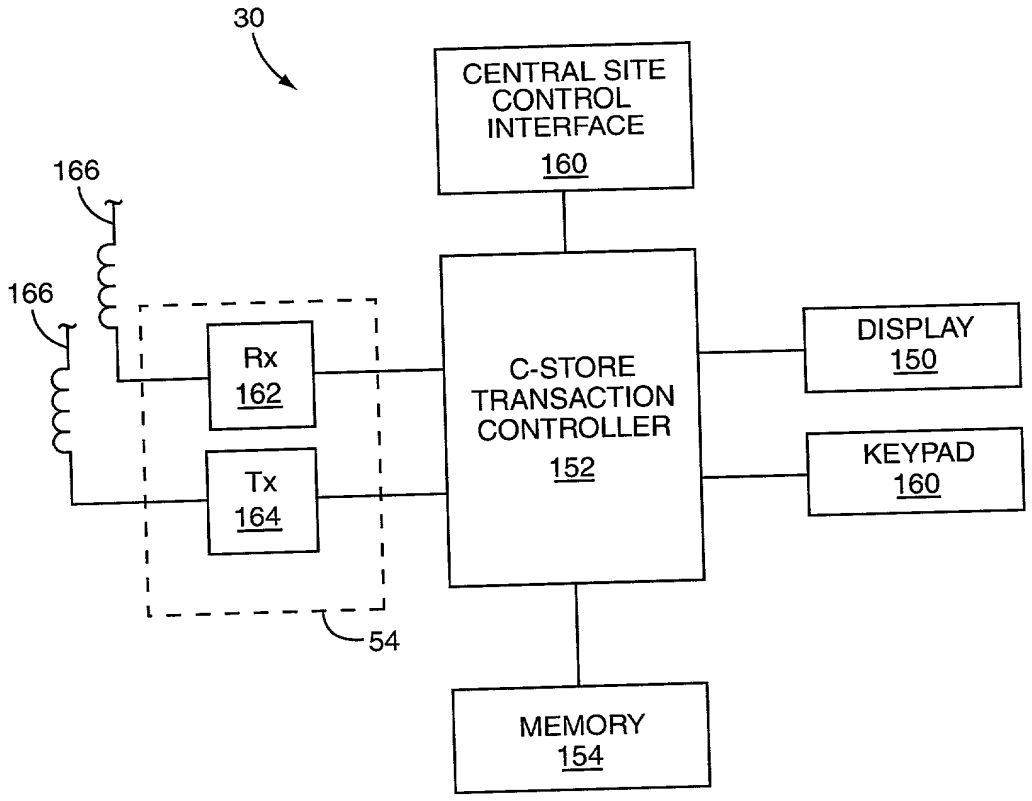
30
CENTRAL SITE CONTROL INTERFACE
160
166
166
Rx
162
Tx
164
C-STORE TRANSACTION CONTROLLER
152
DISPLAY
150
KEYPAD
160
54
MEMORY
154

FIG. 6

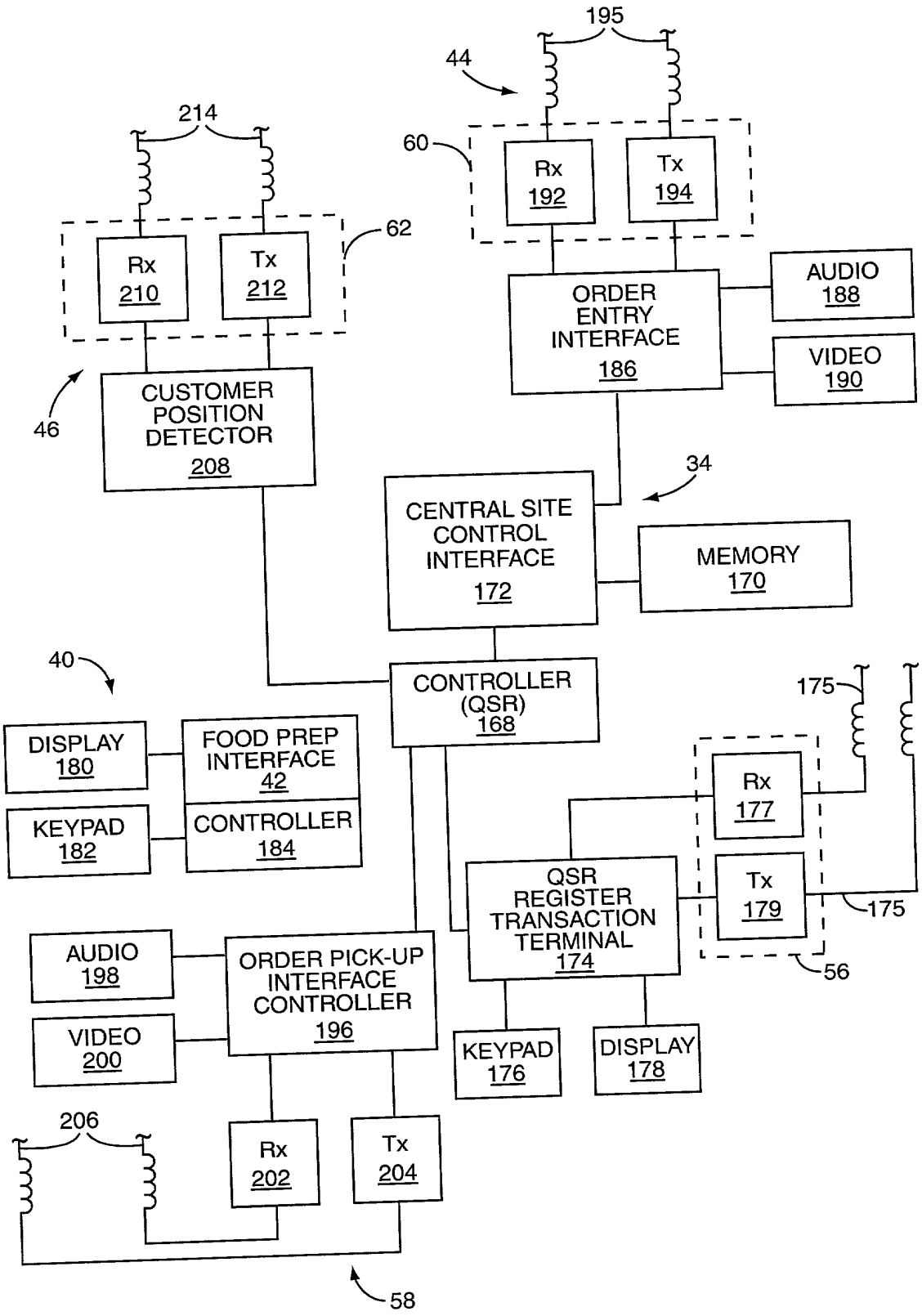
195
44
214
60
Rx
192
Tx
194
62
Rx
210
Tx
212
AUDIO
188
ORDER
ENTRY
INTERFACE
186
VIDEO
190
46
CUSTOMER
POSITION
DETECTOR
208
34
CENTRAL SITE
CONTROL
INTERFACE
172
MEMORY
170
40
CONTROLLER
(QSR)
168
175
DISPLAY
180
FOOD PREP
INTERFACE
42
Rx
177
KEYPAD
182
CONTROLLER
184
QSR
REGISTER
TRANSACTION
TERMINAL
174
Tx
179
175
56
AUDIO
198
ORDER PICK-UP
INTERFACE
CONTROLLER
196
VIDEO
200
KEYPAD
176
DISPLAY
178
206
Rx
202
Tx
204
58

FIG. 7

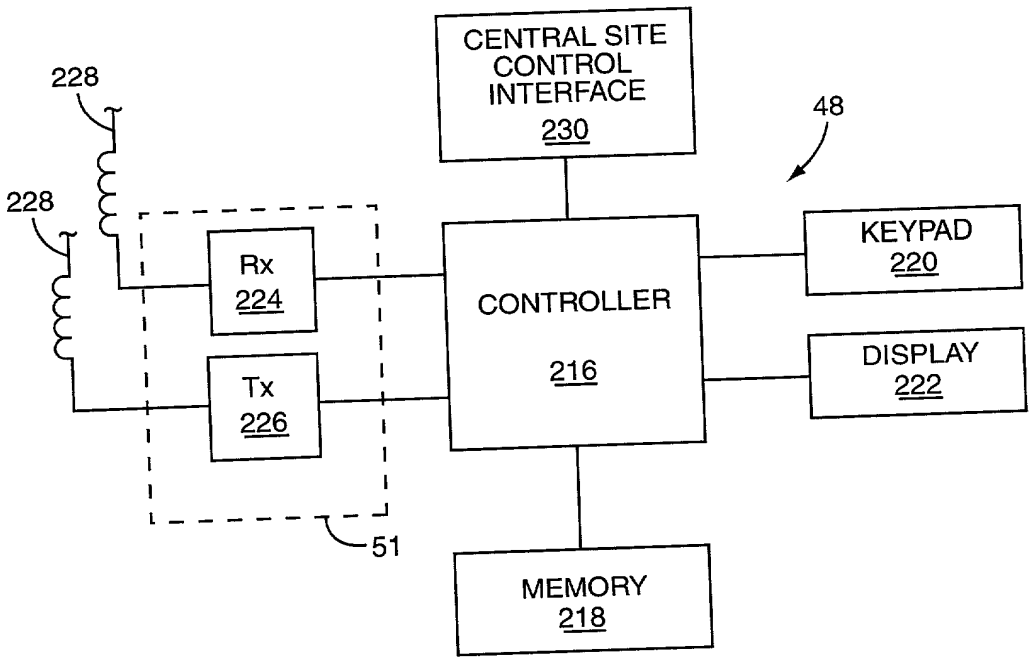
CENTRAL SITE CONTROL INTERFACE 230
48
228
228
Rx 224
Tx 226
CONTROLLER 216
KEYPAD 220
DISPLAY 222
51
MEMORY 218

FIG. 8

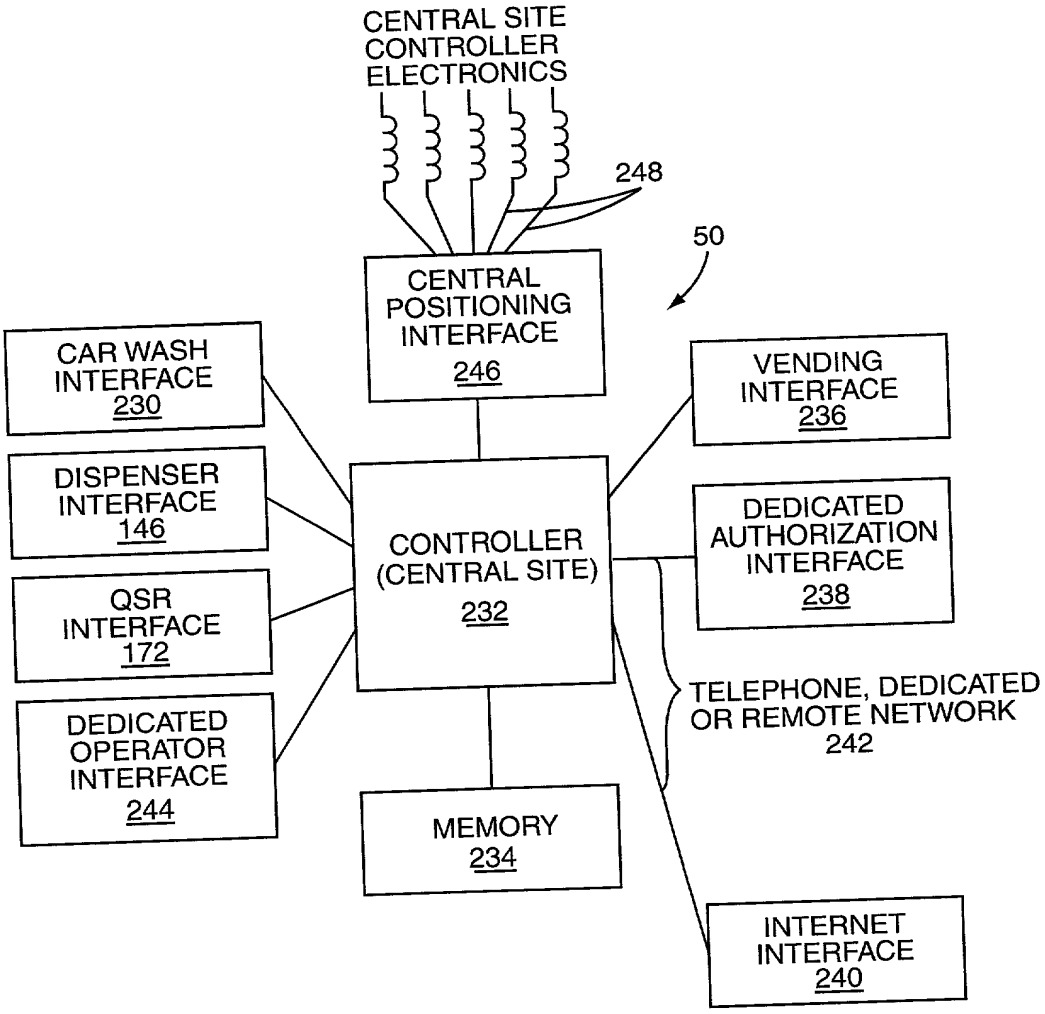
CENTRAL SITE
CONTROLLER
ELECTRONICS
248
50
CENTRAL
POSITIONING
INTERFACE
246
CAR WASH
INTERFACE
230
DISPENSER
INTERFACE
146
QSR
INTERFACE
172
DEDICATED
OPERATOR
INTERFACE
244
CONTROLLER
(CENTRAL SITE)
232
MEMORY
234
VENDING
INTERFACE
236
DEDICATED
AUTHORIZATION
INTERFACE
238
TELEPHONE, DEDICATED
OR REMOTE NETWORK
242
INTERNET
INTERFACE
240

FIG. 9

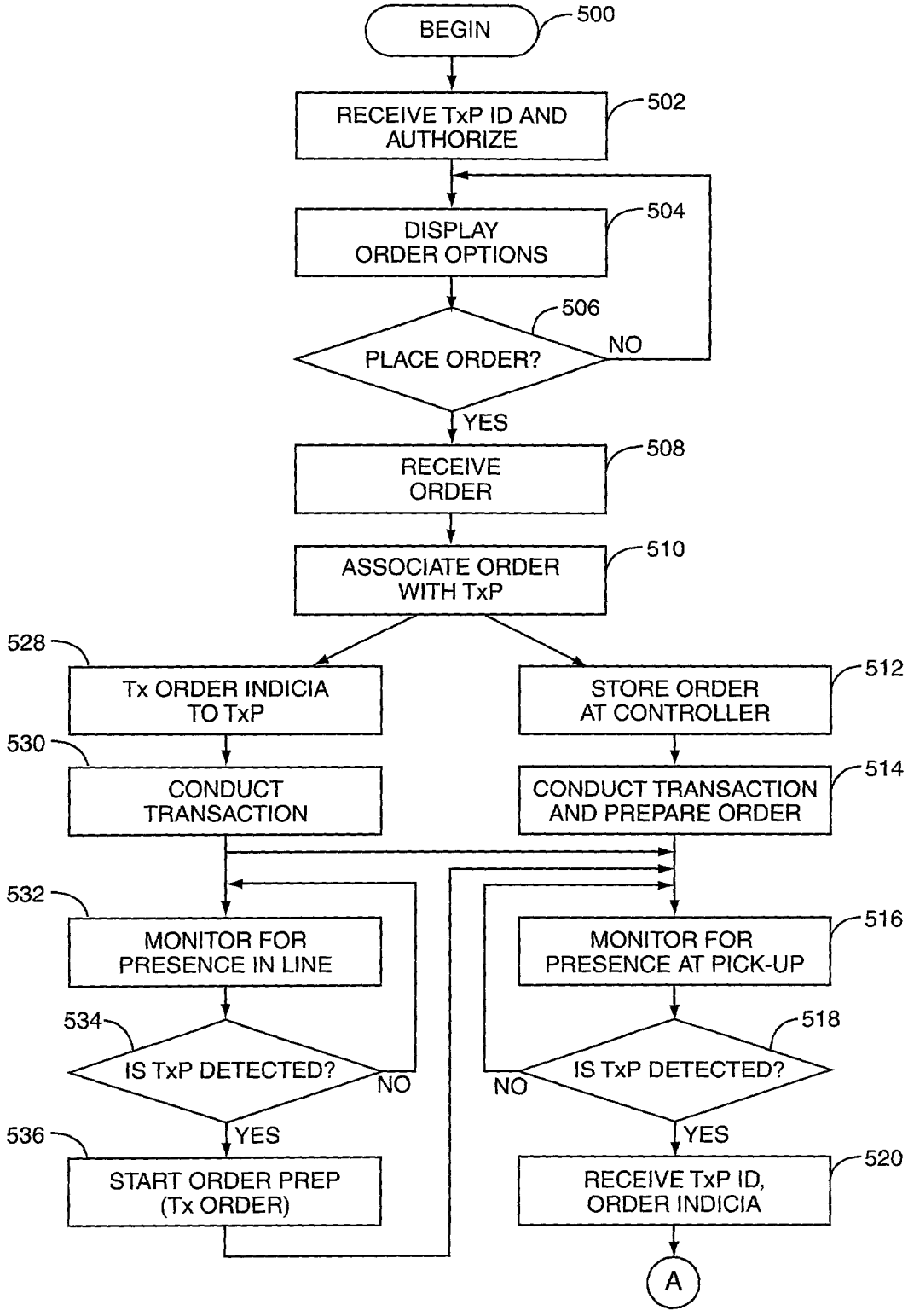
BEGIN
500
RECEIVE TxP ID AND AUTHORIZE
502
DISPLAY ORDER OPTIONS
504
PLACE ORDER?
506
NO
YES
RECEIVE ORDER
508
ASSOCIATE ORDER WITH TxP
510
528
Tx ORDER INDICIA TO TxP
530
CONDUCT TRANSACTION
532
MONITOR FOR PRESENCE IN LINE
534
IS TxP DETECTED?
NO
YES
536
START ORDER PREP (Tx ORDER)
STORE ORDER AT CONTROLLER
512
CONDUCT TRANSACTION AND PREPARE ORDER
514
MONITOR FOR PRESENCE AT PICK-UP
516
518
IS TxP DETECTED?
NO
YES
RECEIVE TxP ID, ORDER INDICIA
520
A

FIG. 10A

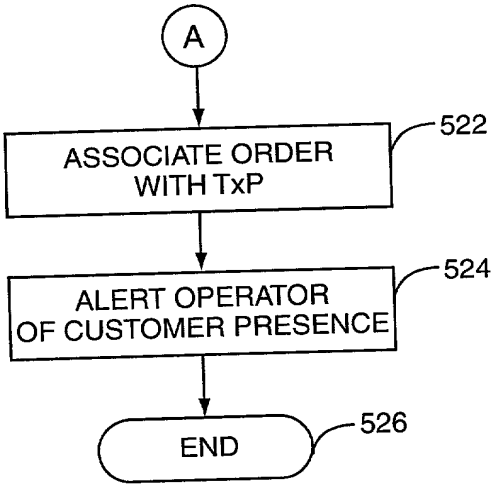
A
ASSOCIATE ORDER WITH TxP
522
ALERT OPERATOR OF CUSTOMER PRESENCE
524
END
526

FIG. 10B

Electronic Acknowledgement Receipt

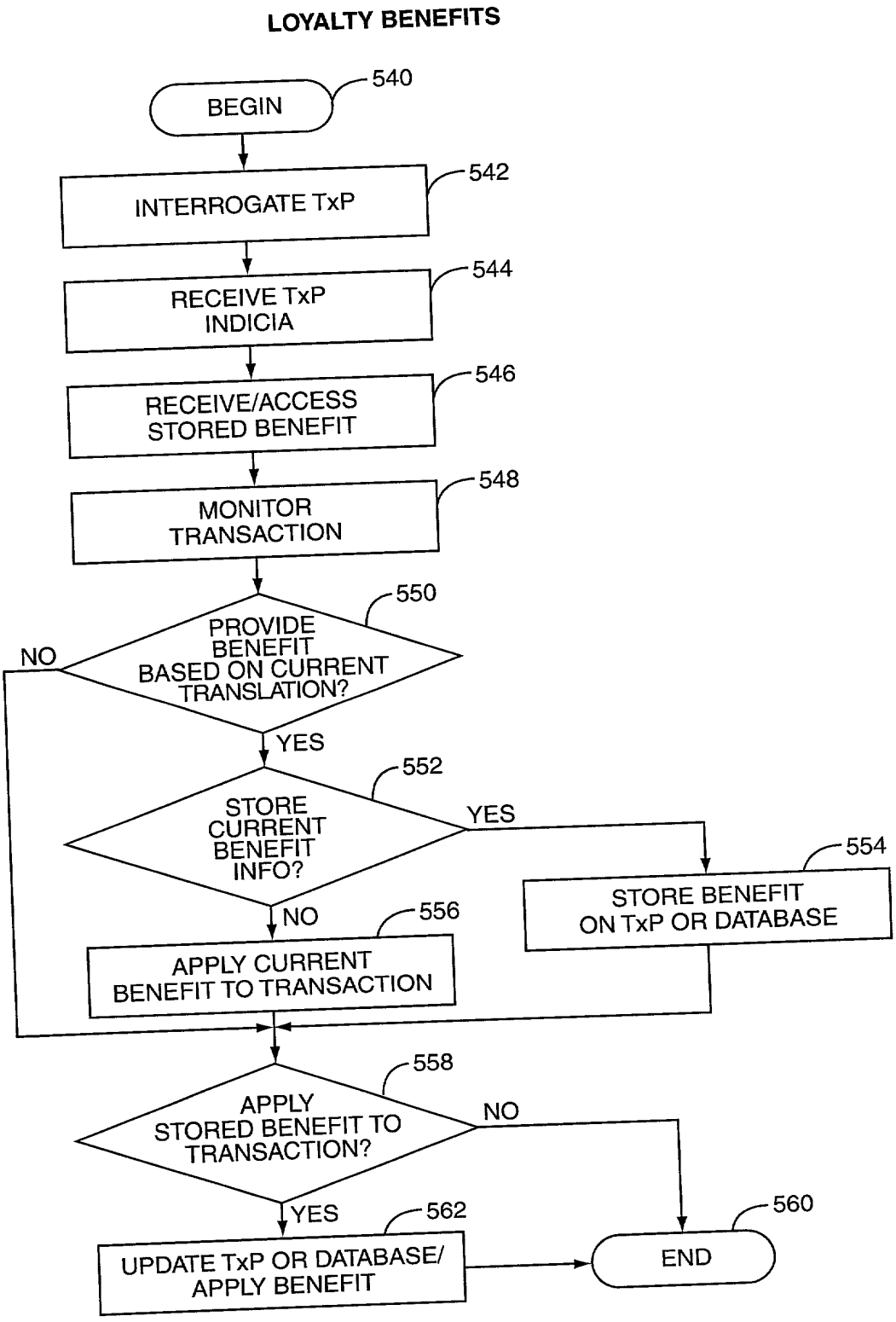

FIG. 10C

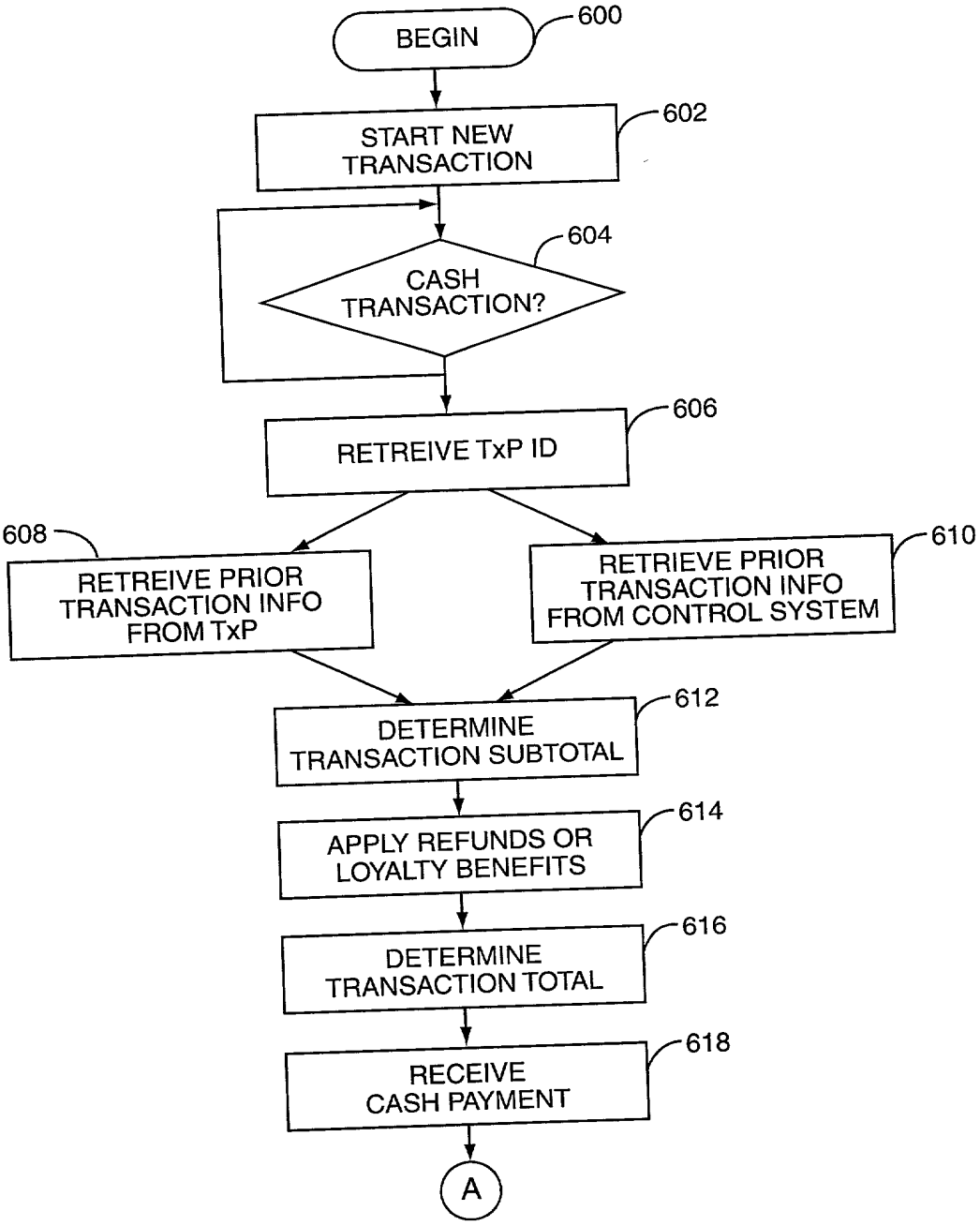
BEGIN
600
START NEW TRANSACTION
602
CASH TRANSACTION?
604
RETREIVE TxP ID
606
608
RETREIVE PRIOR TRANSACTION INFO FROM TxP
RETRIEVE PRIOR TRANSACTION INFO FROM CONTROL SYSTEM
610
DETERMINE TRANSACTION SUBTOTAL
612
APPLY REFUNDS OR LOYALTY BENEFITS
614
DETERMINE TRANSACTION TOTAL
616
RECEIVE CASH PAYMENT
618
A

FIG. 11A

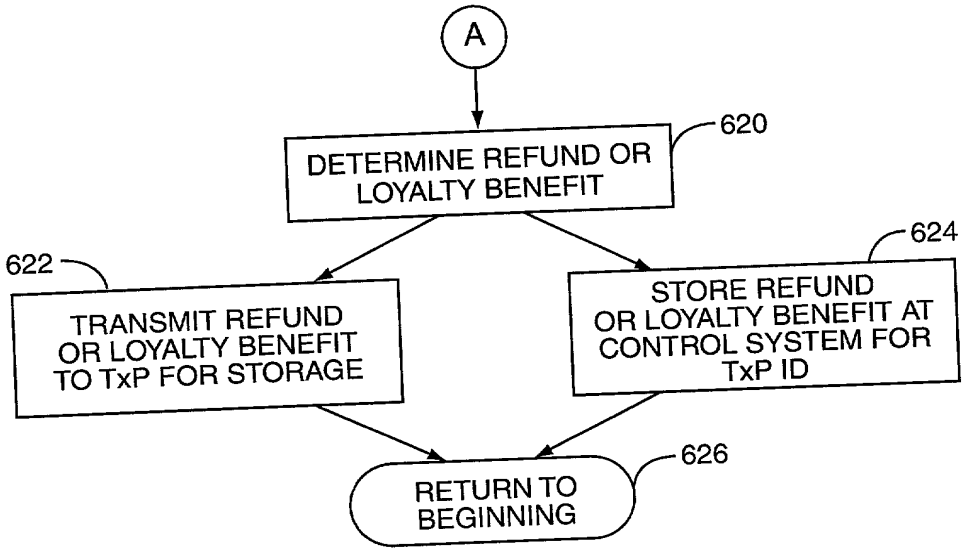
A
DETERMINE REFUND OR LOYALTY BENEFIT
620
622
TRANSMIT REFUND OR LOYALTY BENEFIT TO TxP FOR STORAGE
624
STORE REFUND OR LOYALTY BENEFIT AT CONTROL SYSTEM FOR TxP ID
626
RETURN TO BEGINNING

FIG. 11B

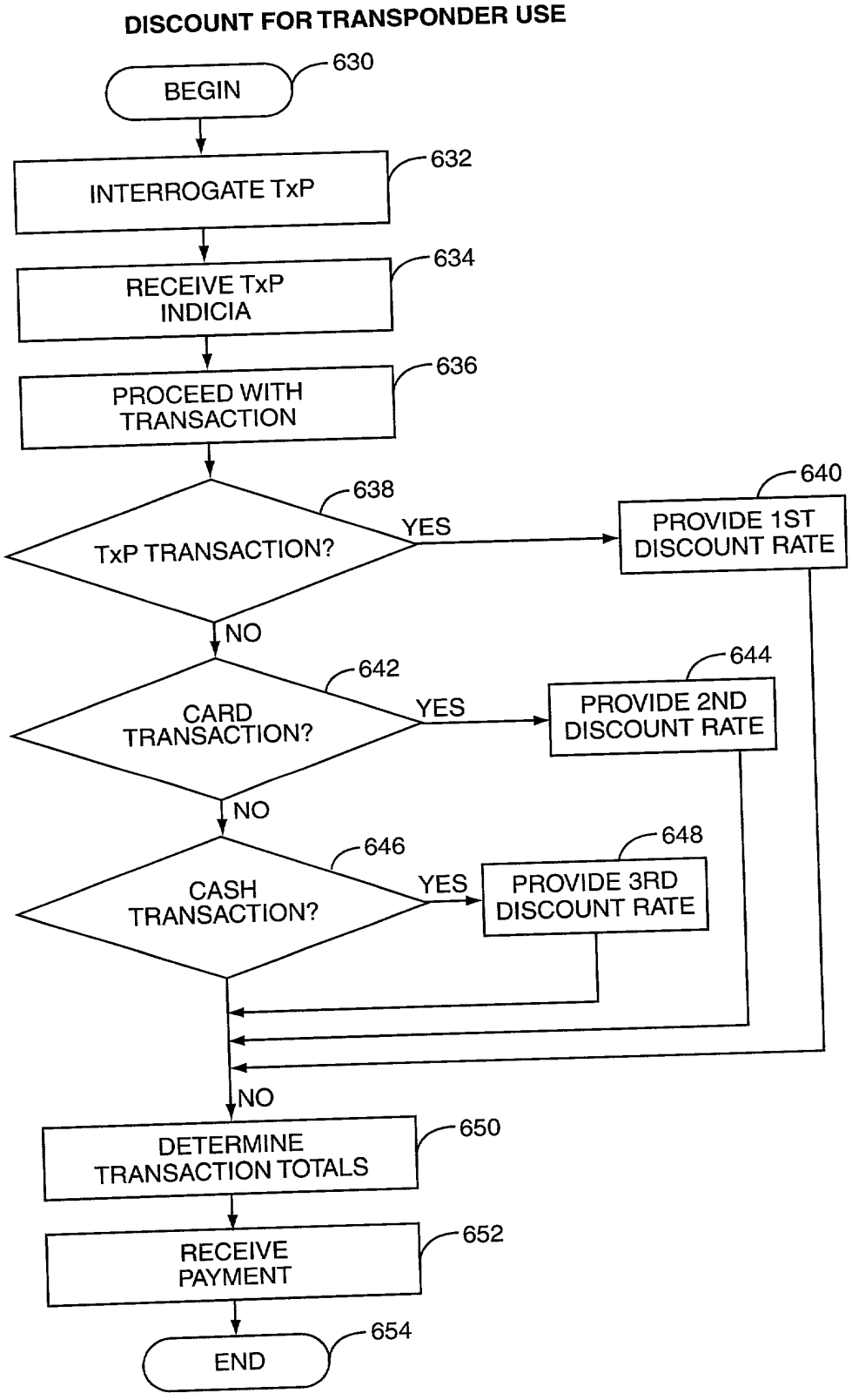
DISCOUNT FOR TRANSPONDER USE
BEGIN
630
INTERROGATE TxP
632
RECEIVE TxP INDICIA
634
PROCEED WITH TRANSACTION
636
TxP TRANSACTION?
638
YES
PROVIDE 1ST DISCOUNT RATE
640
NO
CARD TRANSACTION?
642
YES
PROVIDE 2ND DISCOUNT RATE
644
NO
CASH TRANSACTION?
646
YES
PROVIDE 3RD DISCOUNT RATE
648
NO
DETERMINE TRANSACTION TOTALS
650
RECEIVE PAYMENT
652
END
654

FIG. 11C

CASH PREPAY WITH TxP

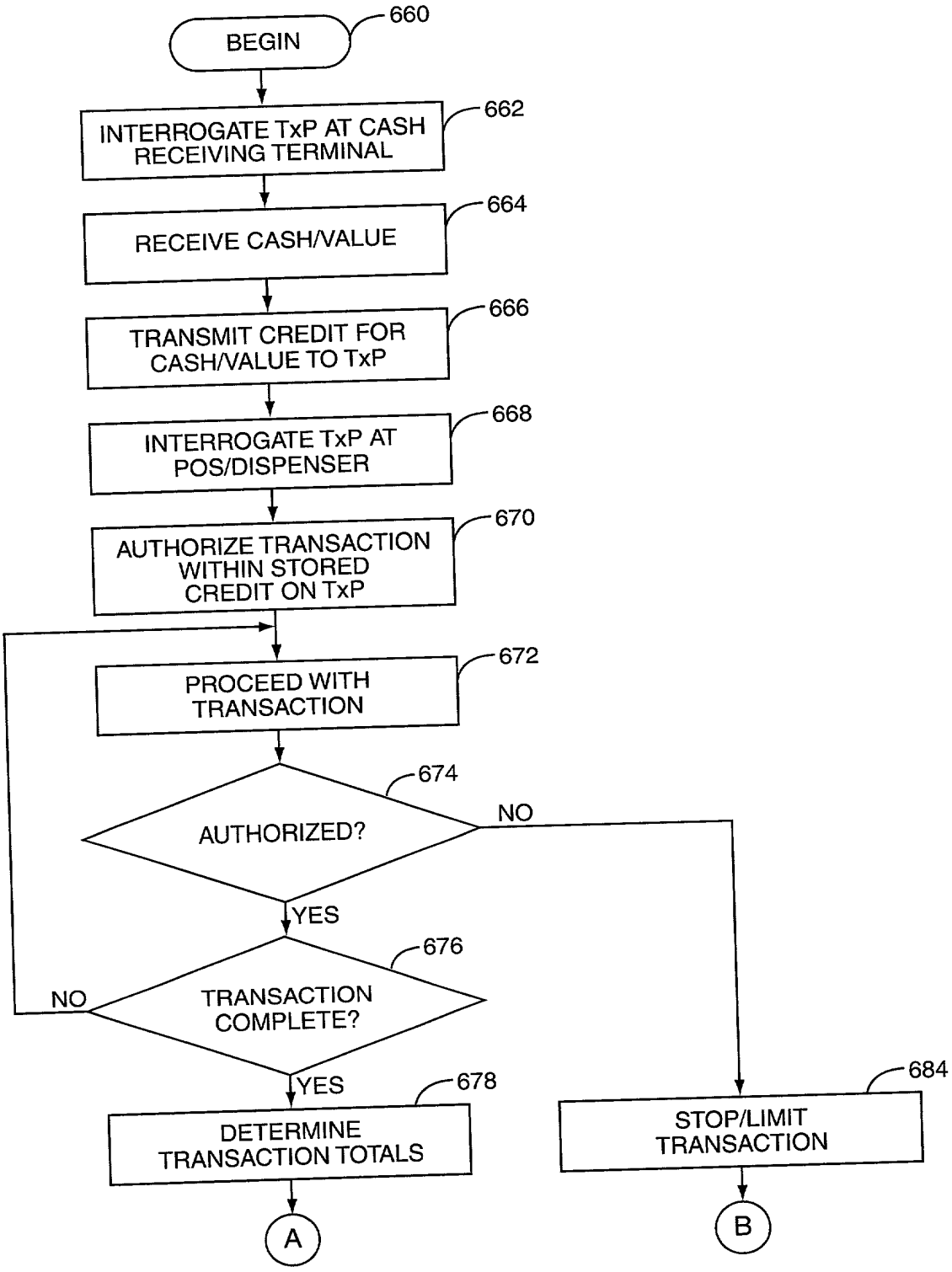

FIG. 11D

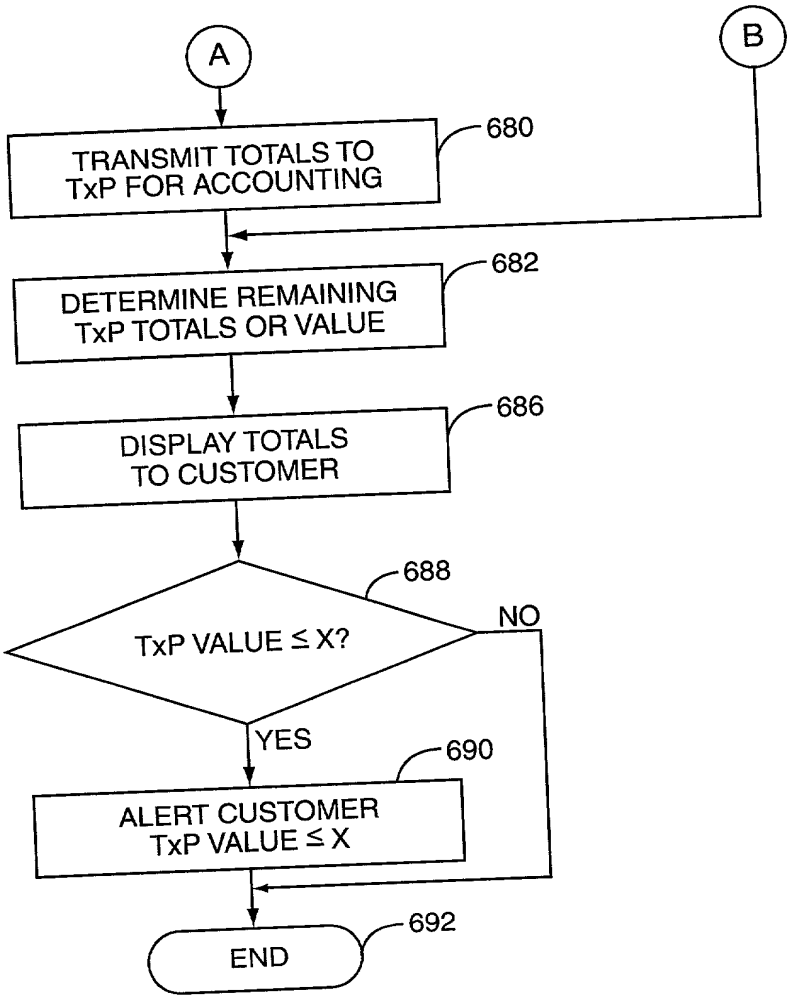
A
B
TRANSMIT TOTALS TO TxP FOR ACCOUNTING
680
DETERMINE REMAINING TxP TOTALS OR VALUE
682
DISPLAY TOTALS TO CUSTOMER
686
TxP VALUE ≤ X?
688
NO
YES
ALERT CUSTOMER TxP VALUE ≤ X
690
END
692

FIG. 11E

TOETHO" T3EZE260

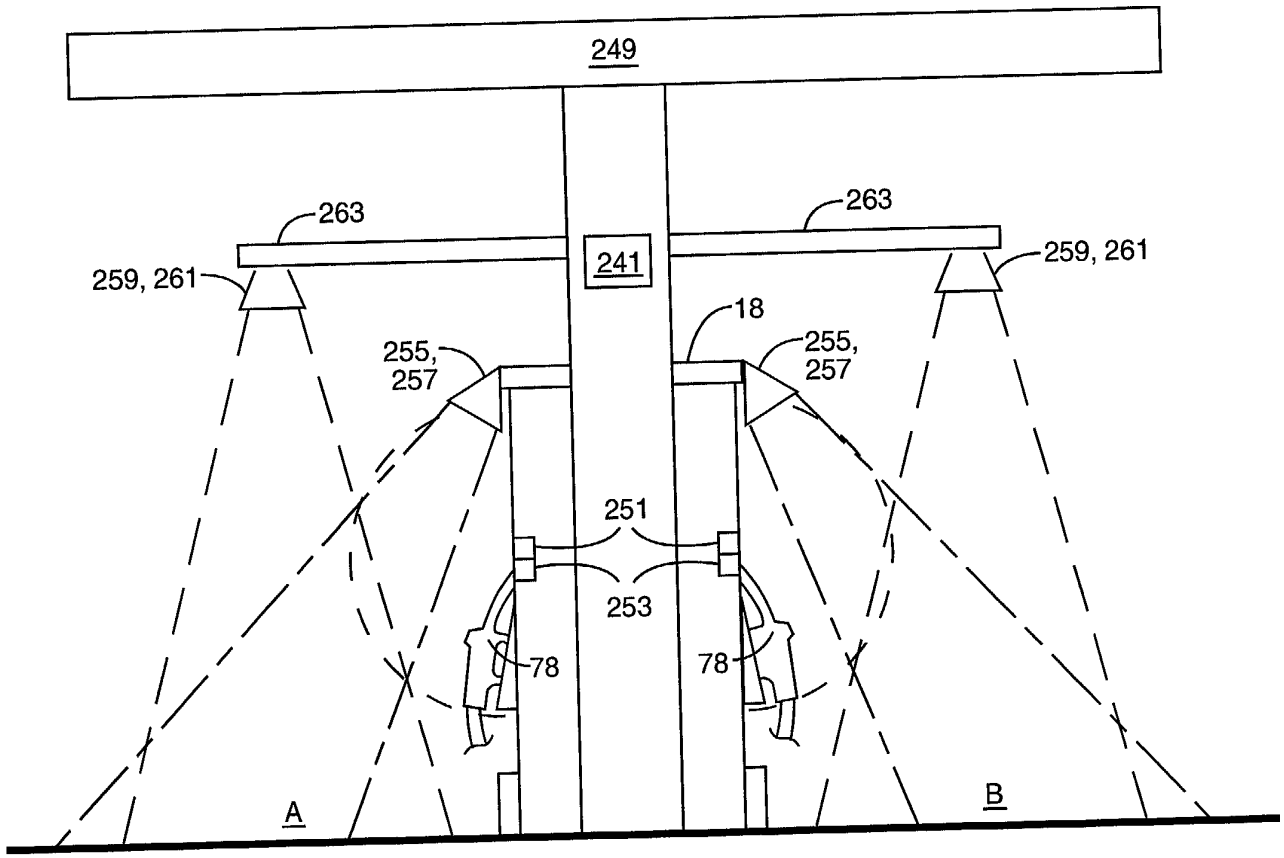

FIG. 12A

TOSHIBA T2E2760

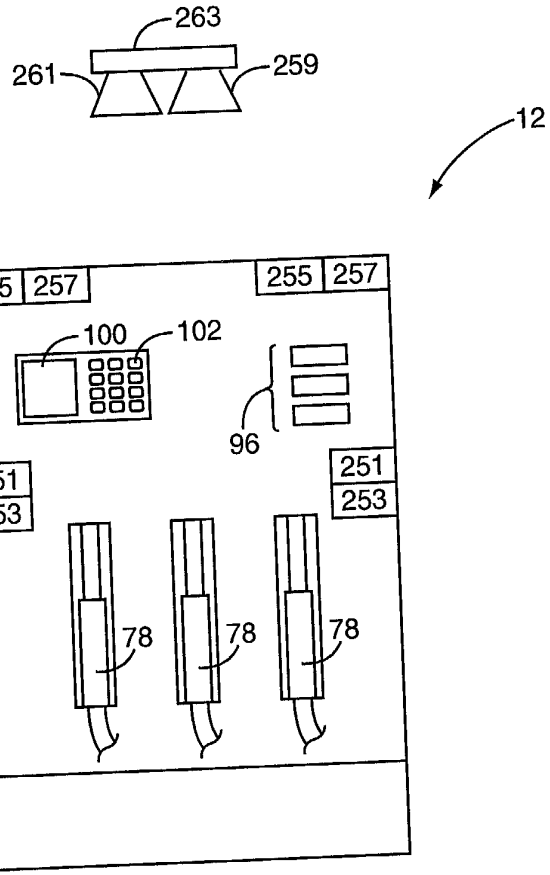

FIG. 12B

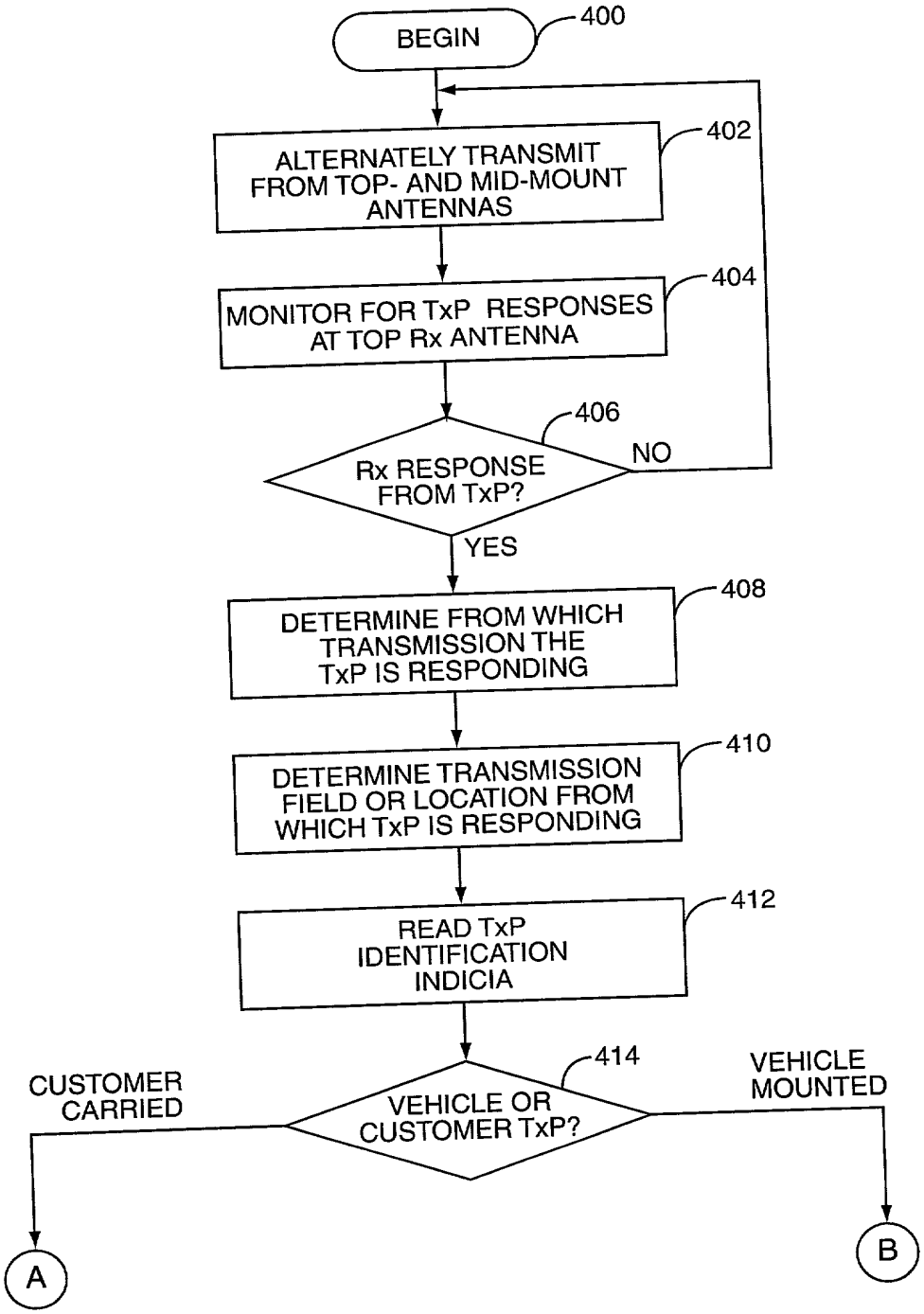
BEGIN
400
ALTERNATELY TRANSMIT FROM TOP- AND MID-MOUNT ANTENNAS
402
MONITOR FOR TxP RESPONSES AT TOP Rx ANTENNA
404
Rx RESPONSE FROM TxP?
406
NO
YES
DETERMINE FROM WHICH TRANSMISSION THE TxP IS RESPONDING
408
DETERMINE TRANSMISSION FIELD OR LOCATION FROM WHICH TxP IS RESPONDING
410
READ TxP IDENTIFICATION INDICIA
412
VEHICLE OR CUSTOMER TxP?
414
CUSTOMER CARRIED
VEHICLE MOUNTED
A
B

FIG. 12C

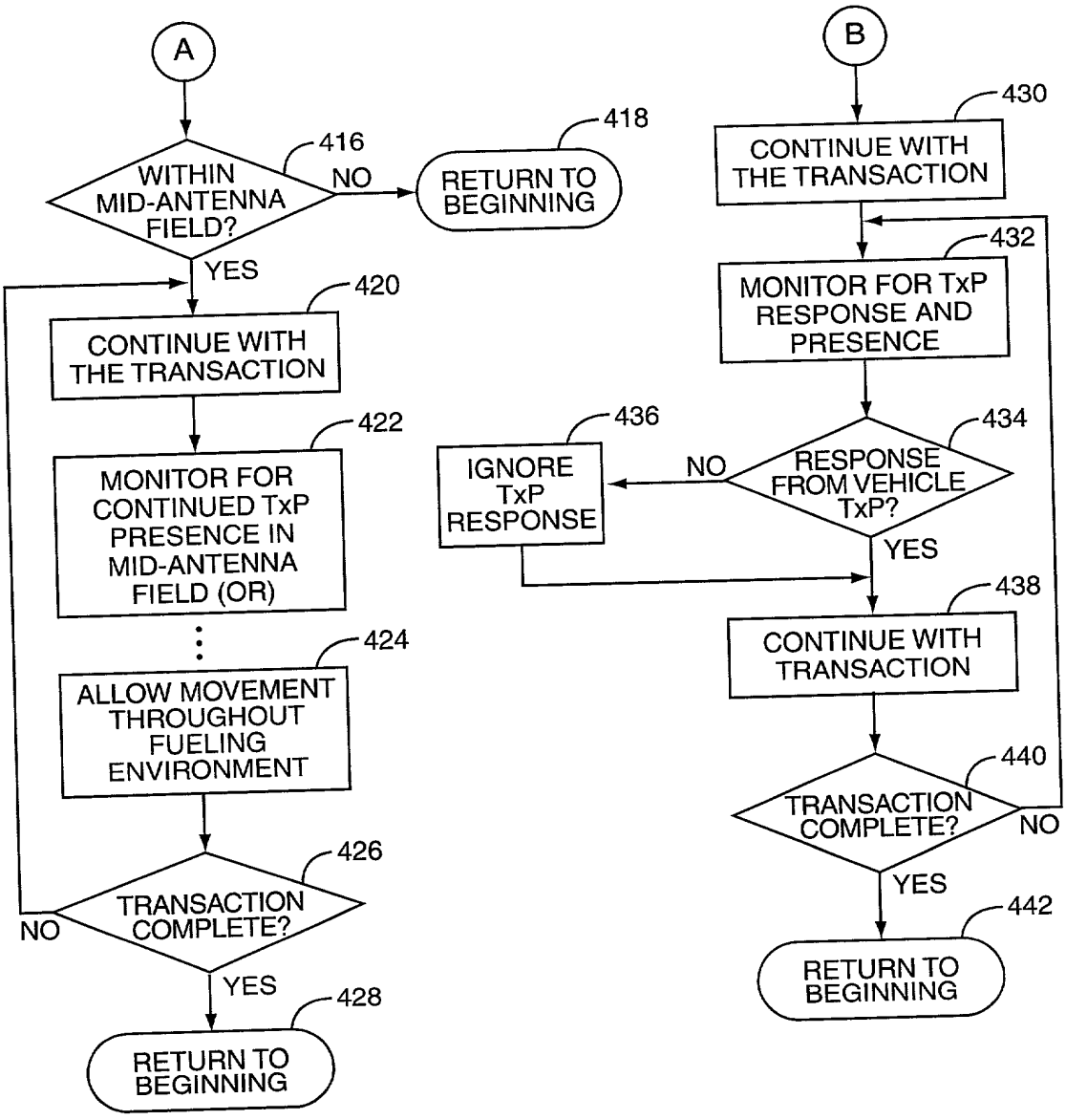
A
WITHIN MID-ANTENNA FIELD?
416
NO
RETURN TO BEGINNING
418
YES
CONTINUE WITH THE TRANSACTION
420
MONITOR FOR CONTINUED TxP PRESENCE IN MID-ANTENNA FIELD (OR)
422
ALLOW MOVEMENT THROUGHOUT FUELING ENVIRONMENT
424
TRANSACTION COMPLETE?
426
NO
YES
RETURN TO BEGINNING
428
B
CONTINUE WITH THE TRANSACTION
430
MONITOR FOR TxP RESPONSE AND PRESENCE
432
RESPONSE FROM VEHICLE TxP?
434
NO
IGNORE TxP RESPONSE
436
YES
CONTINUE WITH TRANSACTION
438
TRANSACTION COMPLETE?
440
NO
YES
RETURN TO BEGINNING
442

FIG. 12D

TOETH0" T3E/2E/60

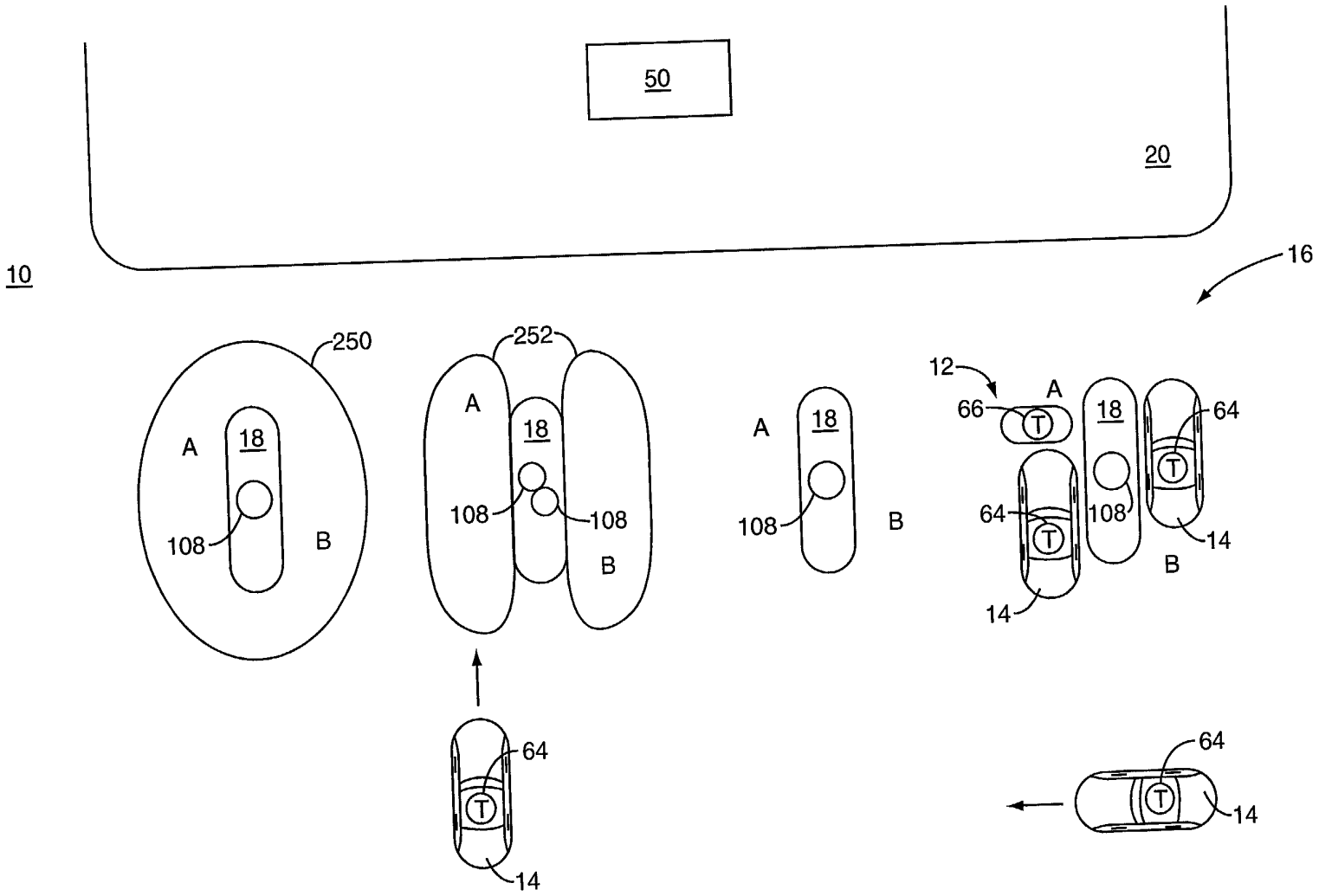

FIG. 13A

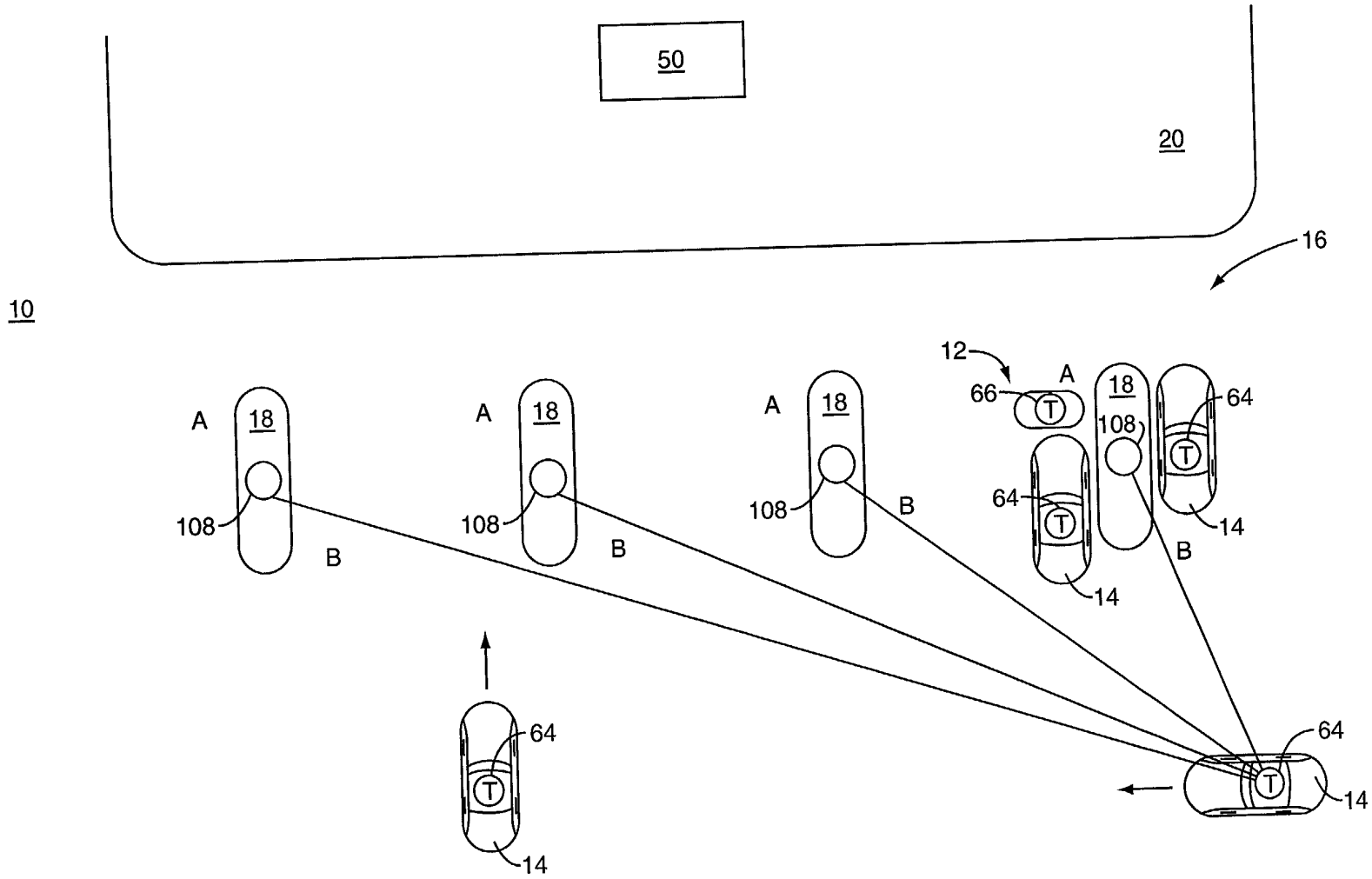

FIG. 13B

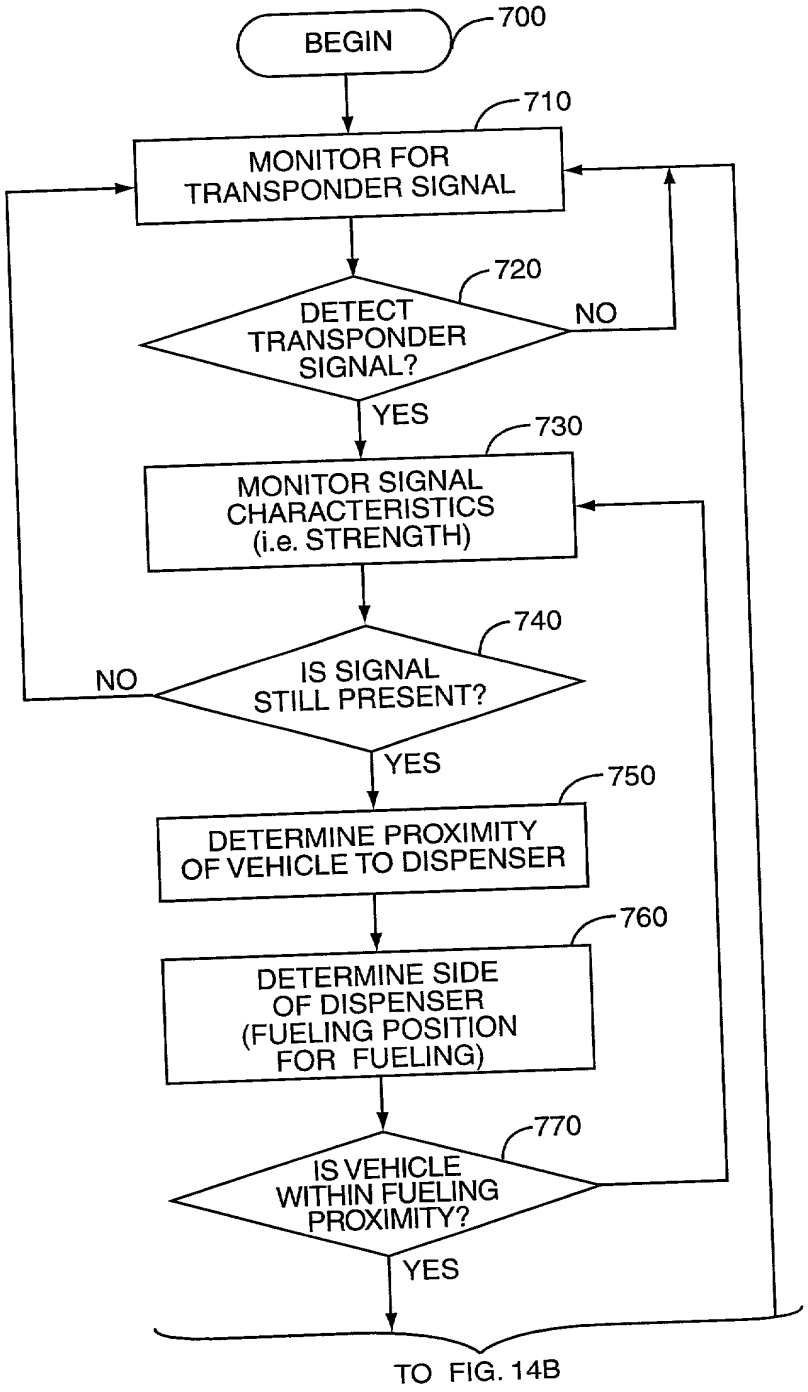
BEGIN
700
MONITOR FOR TRANSPONDER SIGNAL
710
DETECT TRANSPONDER SIGNAL?
720
NO
YES
MONITOR SIGNAL CHARACTERISTICS (i.e. STRENGTH)
730
IS SIGNAL STILL PRESENT?
740
NO
YES
DETERMINE PROXIMITY OF VEHICLE TO DISPENSER
750
DETERMINE SIDE OF DISPENSER (FUELING POSITION FOR FUELING)
760
IS VEHICLE WITHIN FUELING PROXIMITY?
770
YES
TO FIG. 14B

FIG. 14A

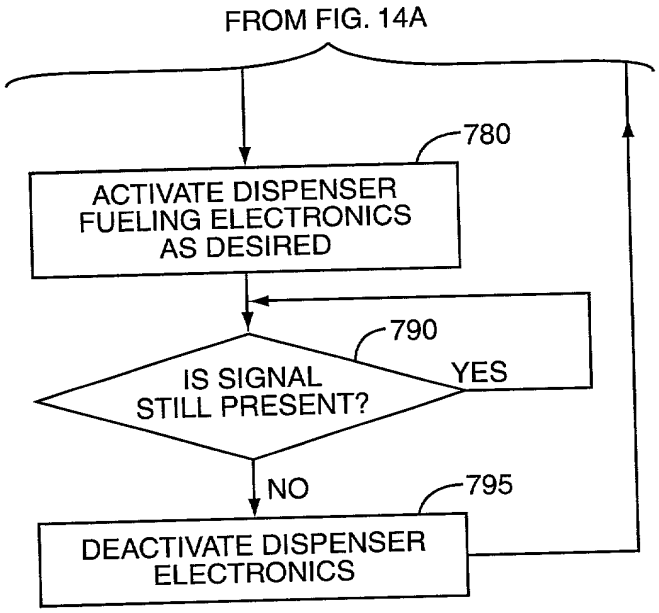
FROM FIG. 14A
780
ACTIVATE DISPENSER FUELING ELECTRONICS AS DESIRED
790
IS SIGNAL STILL PRESENT?
YES
NO
795
DEACTIVATE DISPENSER ELECTRONICS

FIG. 14B

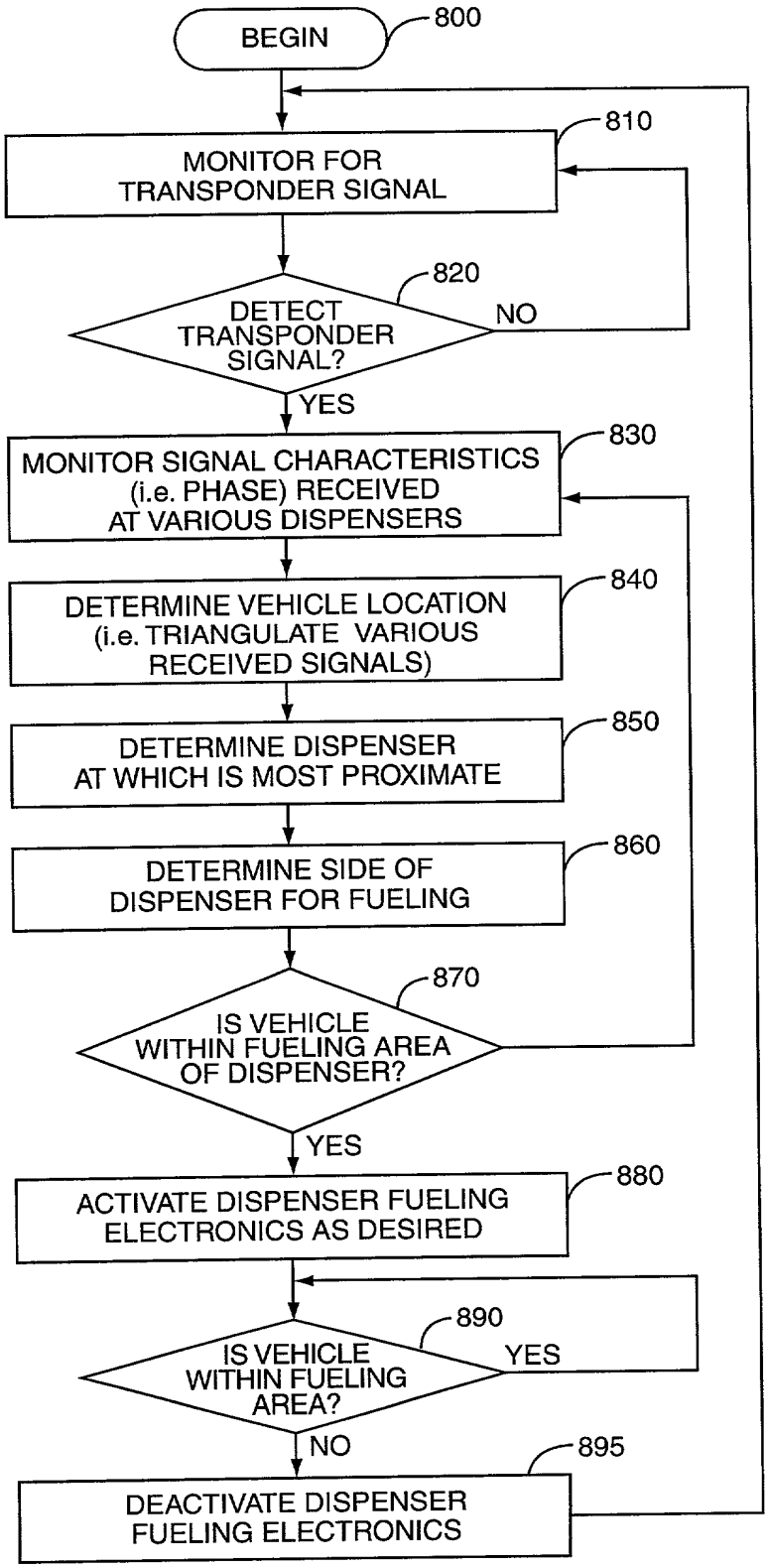
BEGIN
800
MONITOR FOR TRANSPONDER SIGNAL
810
DETECT TRANSPONDER SIGNAL?
820
NO
YES
MONITOR SIGNAL CHARACTERISTICS (i.e. PHASE) RECEIVED AT VARIOUS DISPENSERS
830
DETERMINE VEHICLE LOCATION (i.e. TRIANGULATE VARIOUS RECEIVED SIGNALS)
840
DETERMINE DISPENSER AT WHICH IS MOST PROXIMATE
850
DETERMINE SIDE OF DISPENSER FOR FUELING
860
IS VEHICLE WITHIN FUELING AREA OF DISPENSER?
870
YES
ACTIVATE DISPENSER FUELING ELECTRONICS AS DESIRED
880
IS VEHICLE WITHIN FUELING AREA?
890
YES
NO
DEACTIVATE DISPENSER FUELING ELECTRONICS
895

FIG. 15

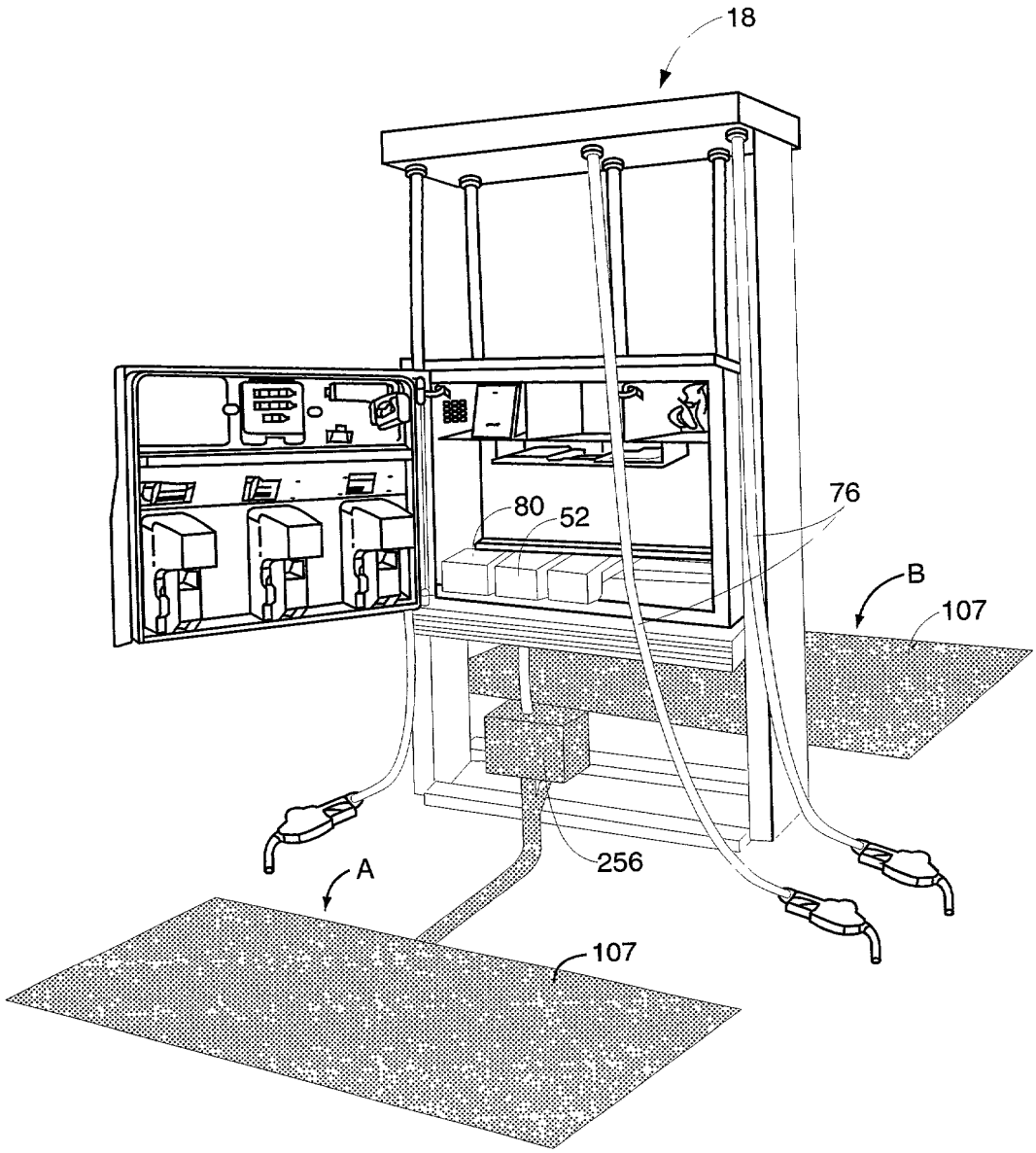

FIG. 16

TOETHO" T2E2260

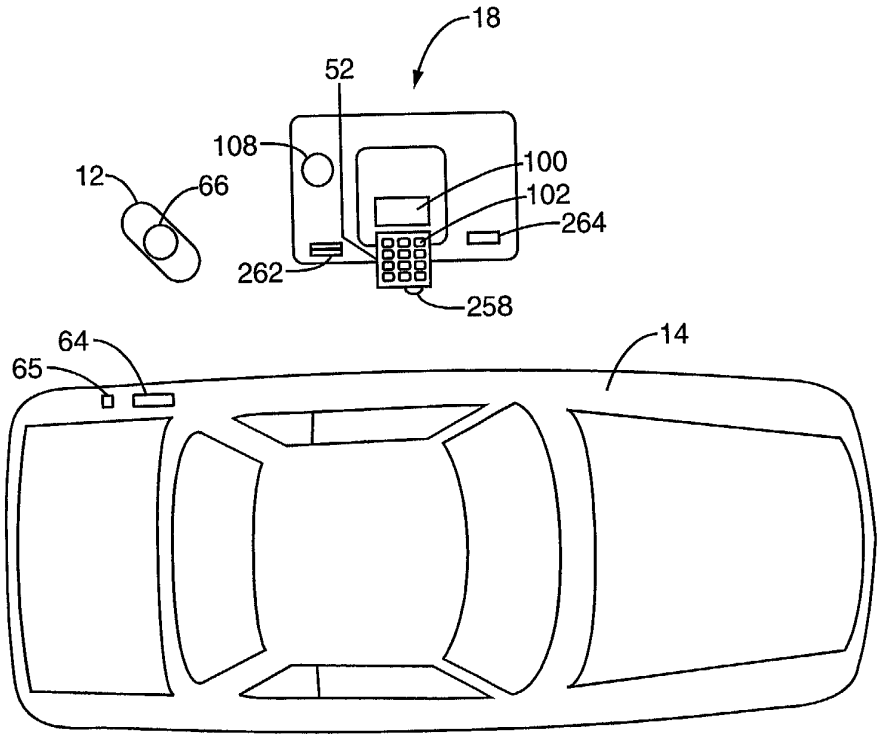

FIG. 17

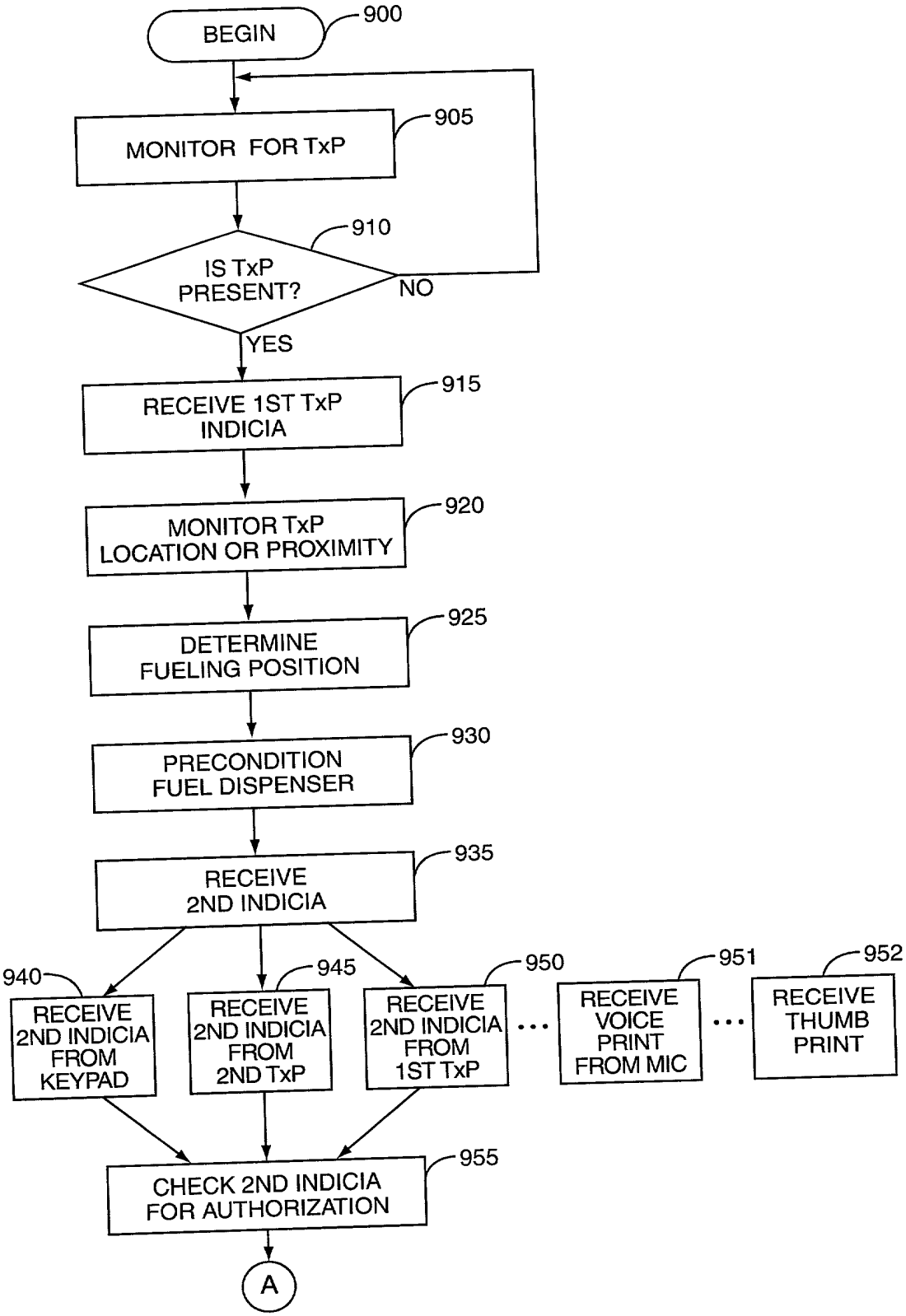
BEGIN
900
MONITOR FOR TxP
905
IS TxP PRESENT?
910
NO
YES
RECEIVE 1ST TxP INDICIA
915
MONITOR TxP LOCATION OR PROXIMITY
920
DETERMINE FUELING POSITION
925
PRECONDITION FUEL DISPENSER
930
RECEIVE 2ND INDICIA
935
940
RECEIVE 2ND INDICIA FROM KEYPAD
945
RECEIVE 2ND INDICIA FROM 2ND TxP
950
RECEIVE 2ND INDICIA FROM 1ST TxP
951
RECEIVE VOICE PRINT FROM MIC
952
RECEIVE THUMB PRINT
CHECK 2ND INDICIA FOR AUTHORIZATION
955
A

FIG. 18A

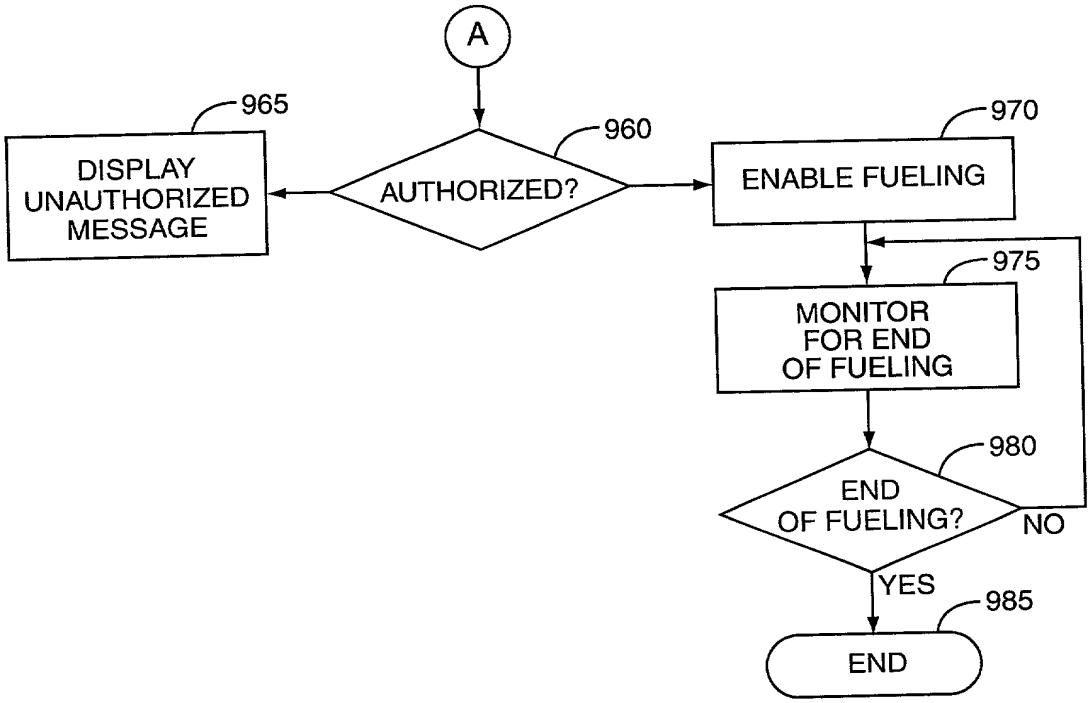
A
965
DISPLAY UNAUTHORIZED MESSAGE
960
AUTHORIZED?
970
ENABLE FUELING
975
MONITOR FOR END OF FUELING
980
END OF FUELING?
NO
YES
985
END

FIG. 18B

TOETHO" T2E/2E/60

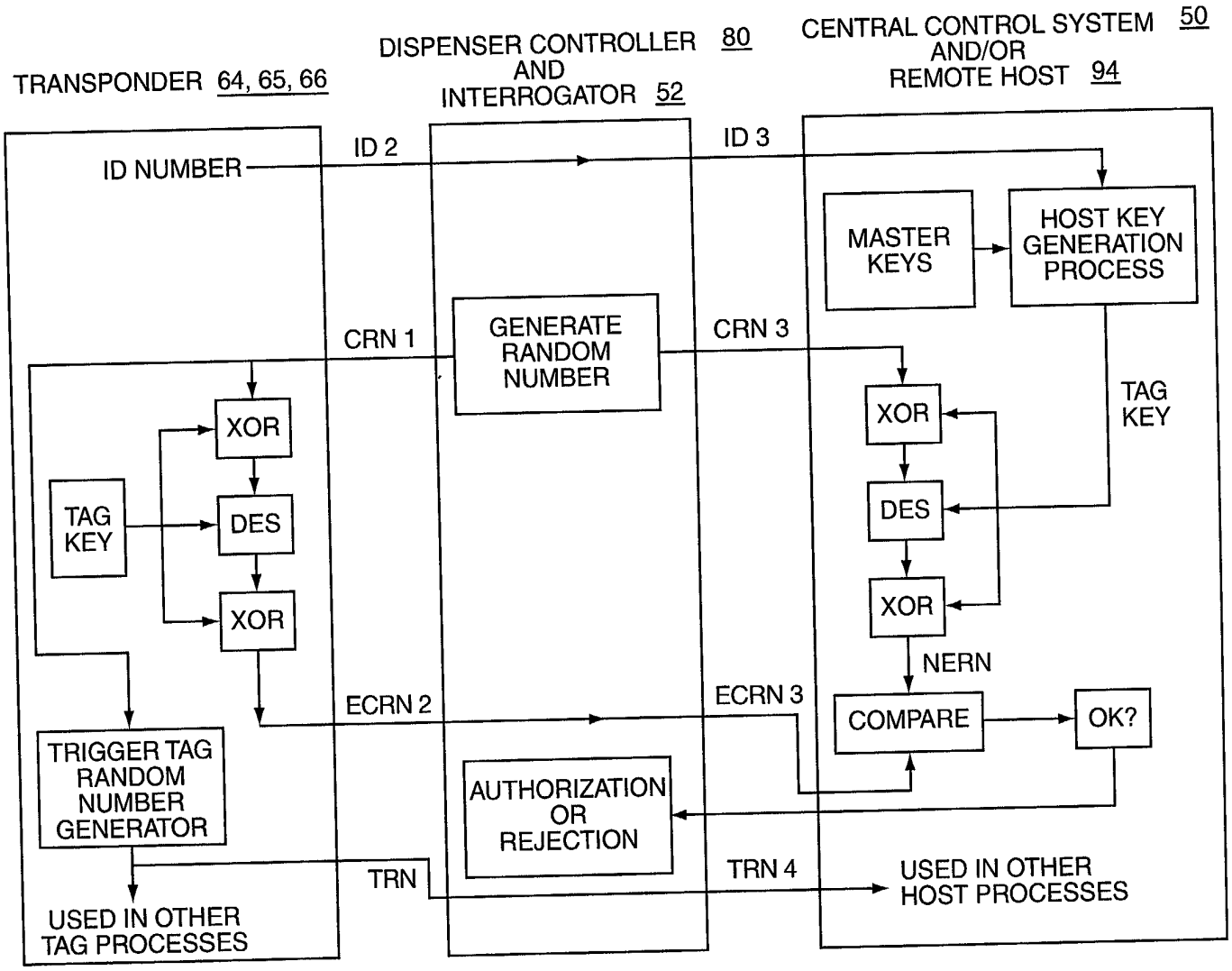

FIG. 19

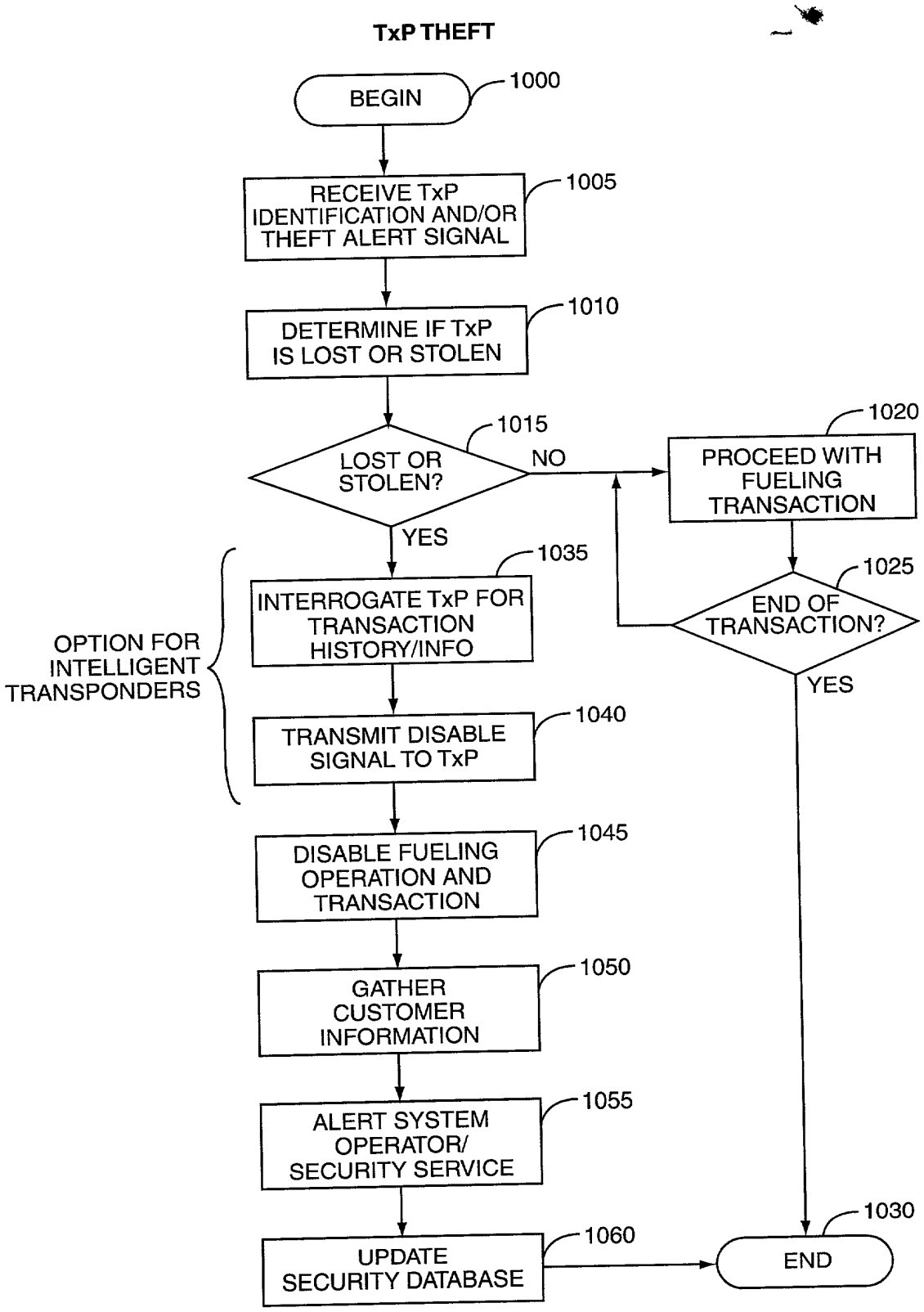
TxP THEFT
BEGIN
1000
RECEIVE TxP IDENTIFICATION AND/OR THEFT ALERT SIGNAL
1005
DETERMINE IF TxP IS LOST OR STOLEN
1010
LOST OR STOLEN?
1015
NO
PROCEED WITH FUELING TRANSACTION
1020
YES
END OF TRANSACTION?
1025
YES
OPTION FOR INTELLIGENT TRANSPONDERS
INTERROGATE TxP FOR TRANSACTION HISTORY/INFO
1035
TRANSMIT DISABLE SIGNAL TO TxP
1040
DISABLE FUELING OPERATION AND TRANSACTION
1045
GATHER CUSTOMER INFORMATION
1050
ALERT SYSTEM OPERATOR/ SECURITY SERVICE
1055
UPDATE SECURITY DATABASE
1060
END
1030

FIG. 20

DRIVE-OFF

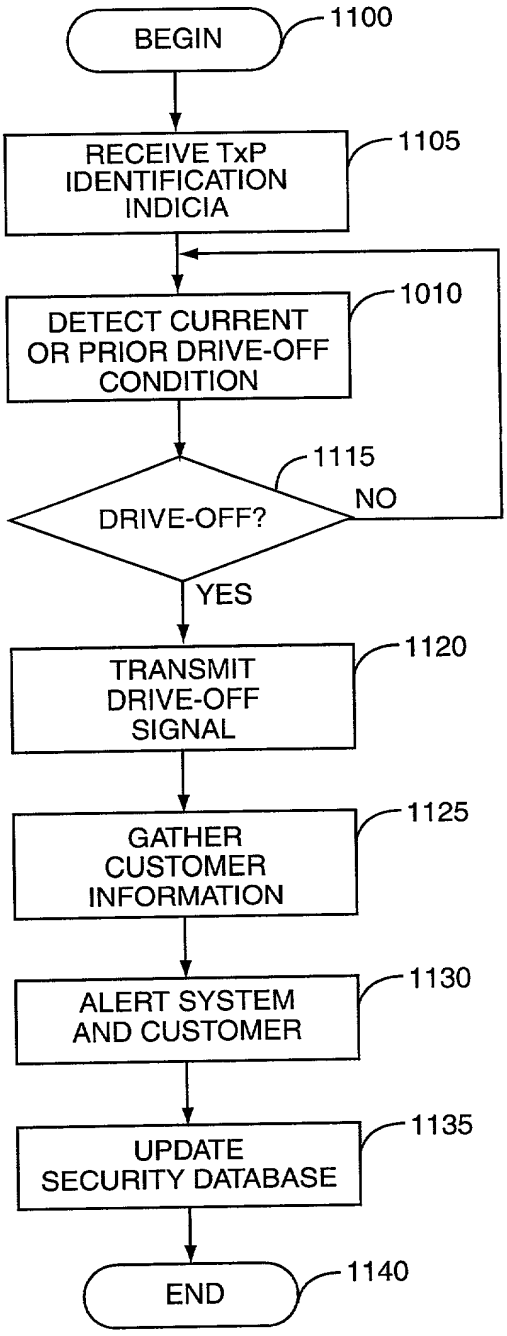

FIG. 21

TRANSACTION LIMITATIONS

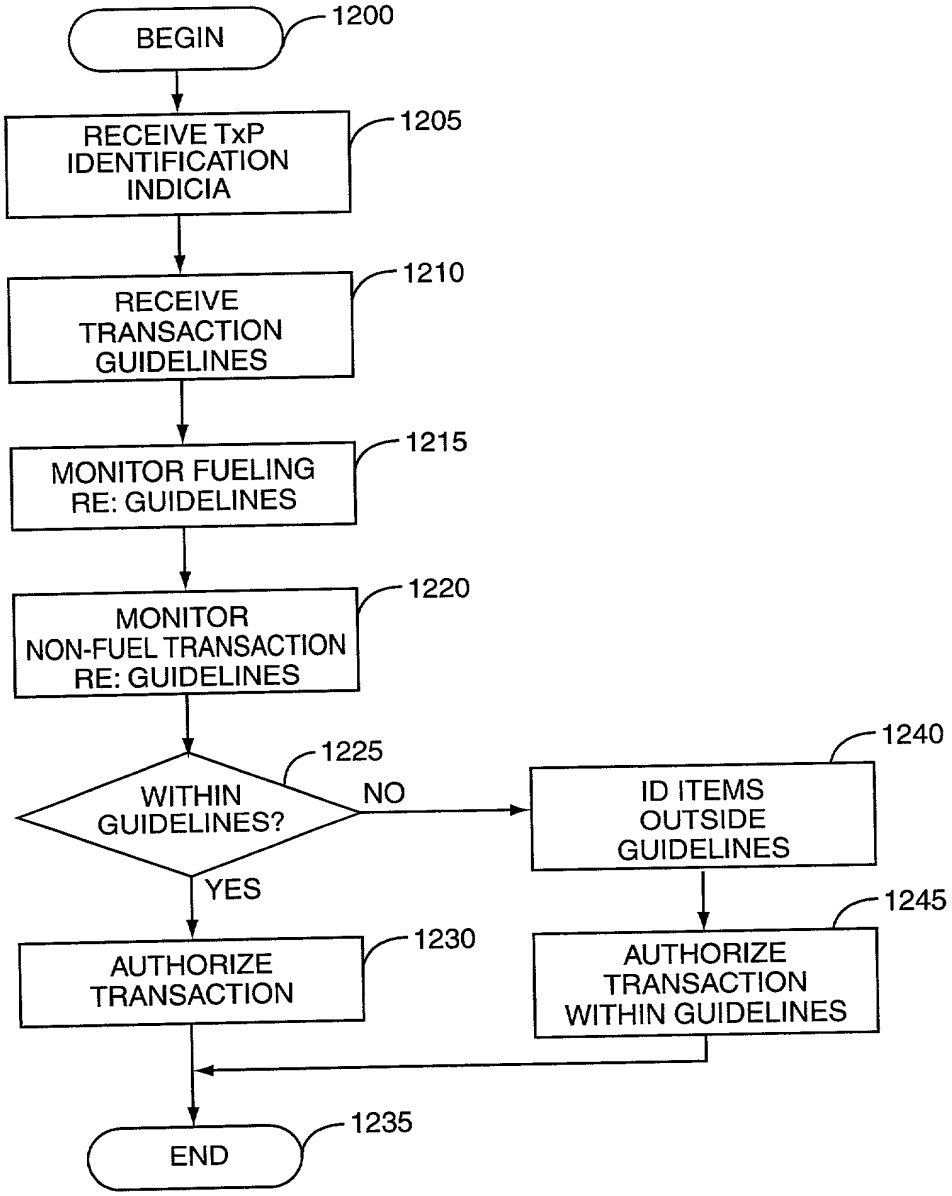

FIG. 22

TOETHO" T2E/E260

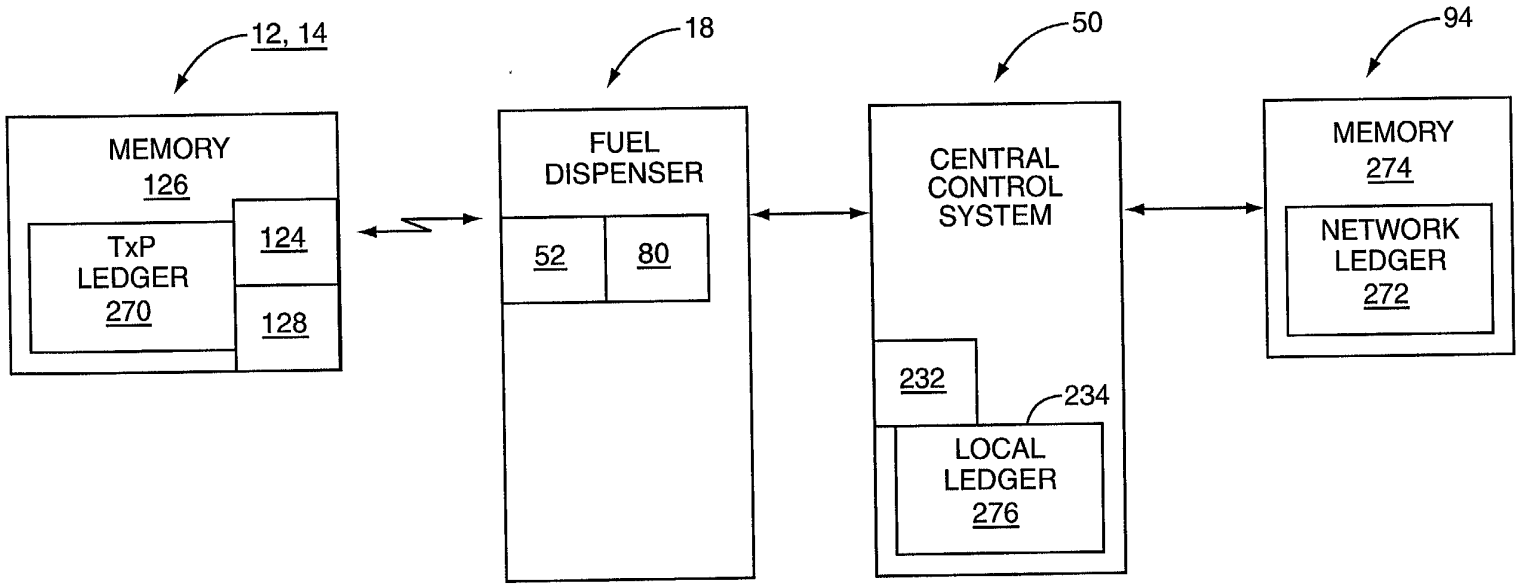

FIG. 23

CREATING A SHADOW LEDGER

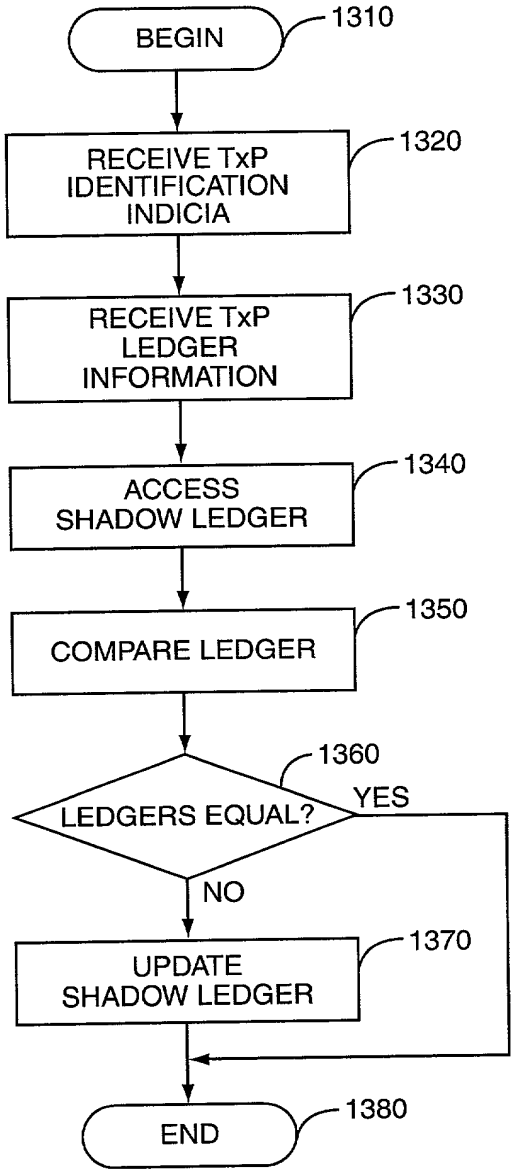

FIG. 24

TRANSACTION TRACKING

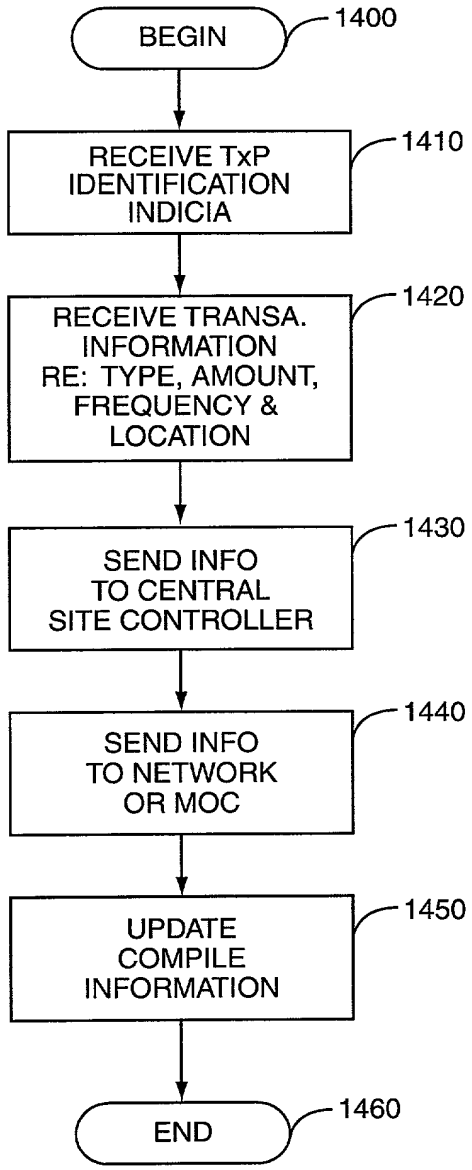

FIG. 25

CUSTOMER PREFERENCES

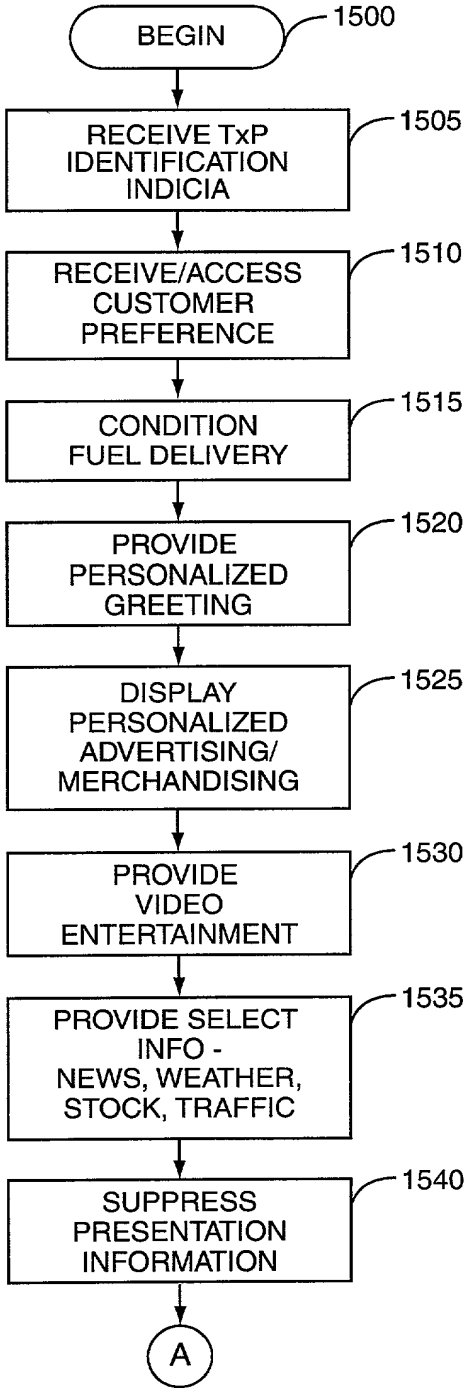

FIG. 26A

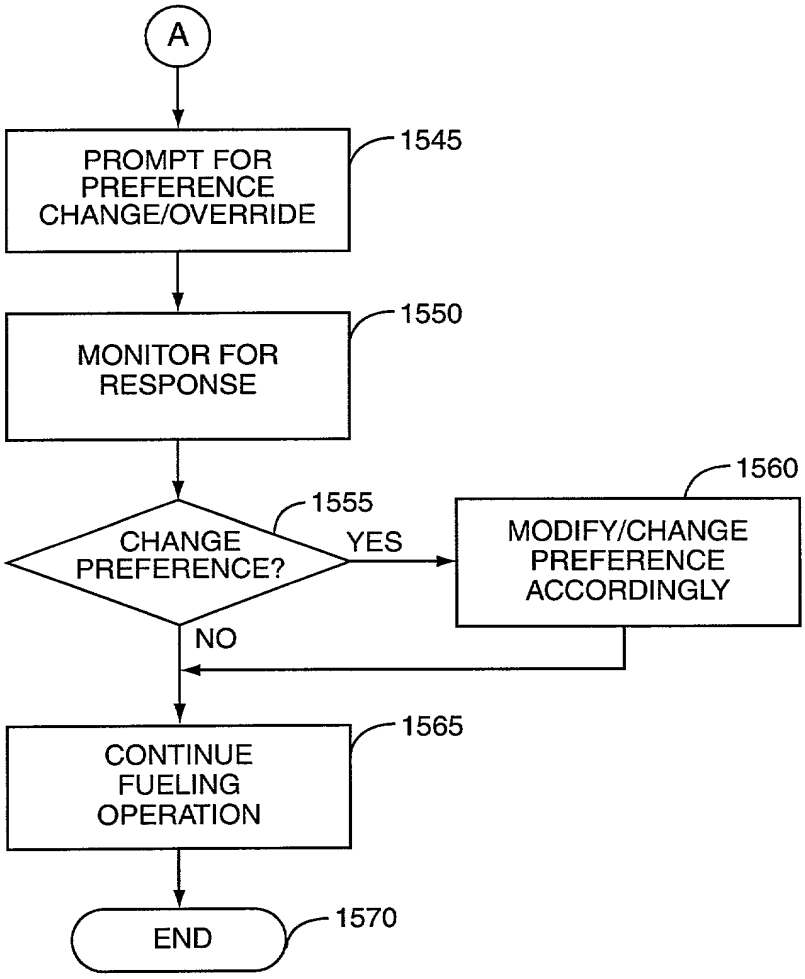
A
PROMPT FOR PREFERENCE CHANGE/OVERRIDE
1545
MONITOR FOR RESPONSE
1550
CHANGE PREFERENCE?
1555
YES
MODIFY/CHANGE PREFERENCE ACCORDINGLY
1560
NO
CONTINUE FUELING OPERATION
1565
END
1570

FIG. 26B

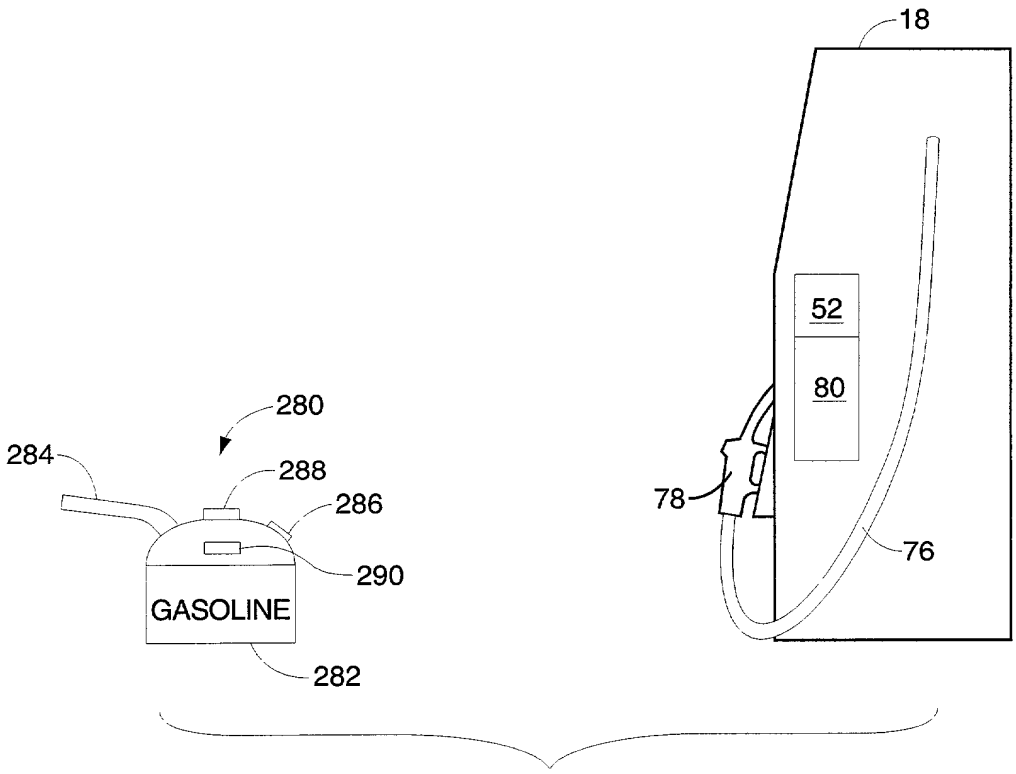

FIG. 27

PREVENTING UNAUTHORIZED CONTAINER FUELING

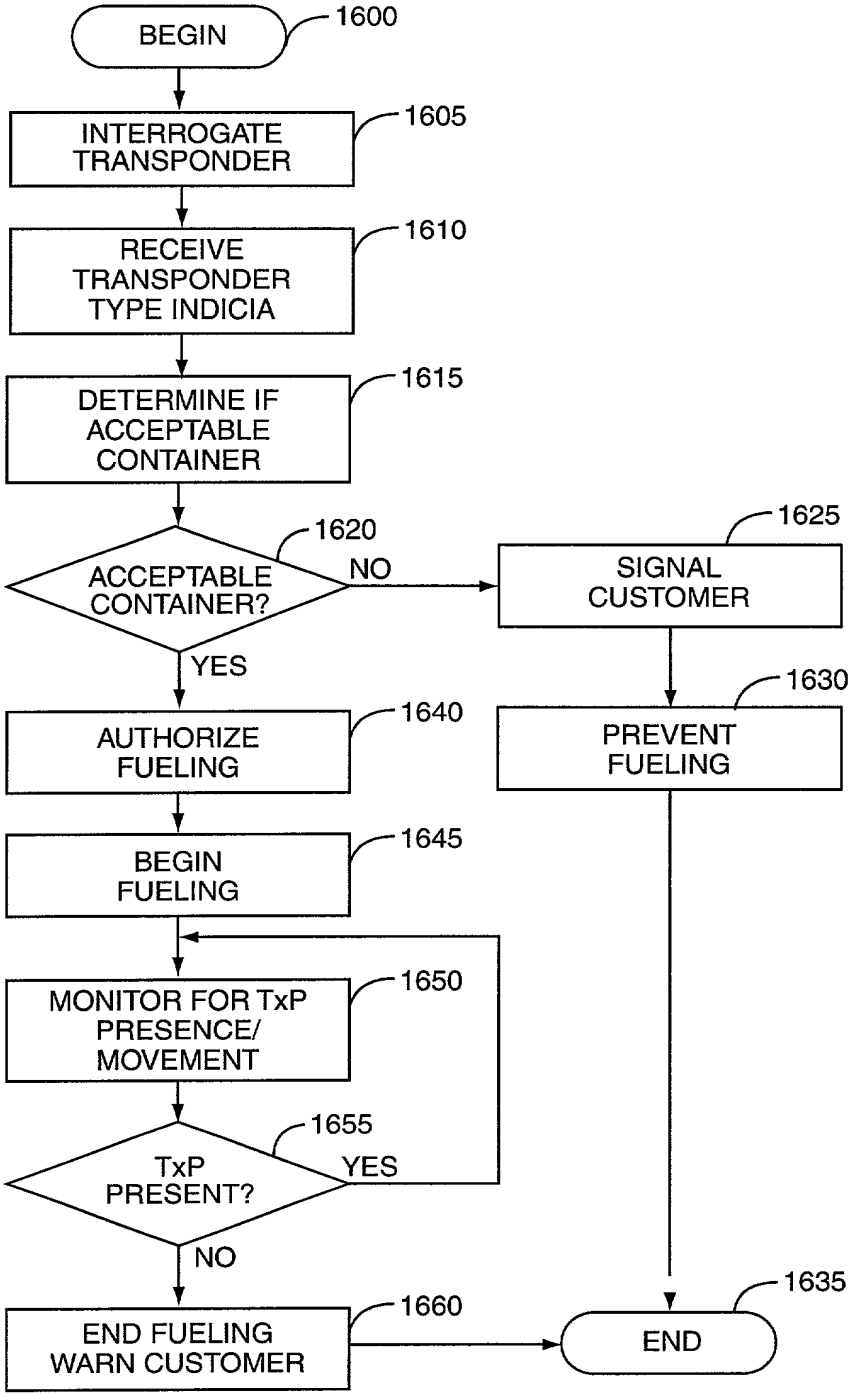

FIG. 28

PRETRANSACTION ESTIMATES
BEGIN
1700
RECEIVE TxP IDENTIFICATION INDICIA/TxP TYPE
1705
DETERMINE TxP TYPE
1710
VEHICLE TxP?
1715
NO
YES
INTEGRATED TxP?
1720
NO
YES
1730
CUSTOMER REQUEST FOR FILL-UP ESTIMATE
REAL-TIME OR PREAUTHORIZED
PROVIDE FILL-UP EST.?
1725
NO
YES
INTERROGATE FOR ULLAGE INDICIA
1735
RECEIVE ULLAGE INDICIA
1740
DETERMINE/ CALCULATE ULLAGE
1745
START FUELING OPERATION
1795
A
B

FIG. 29A

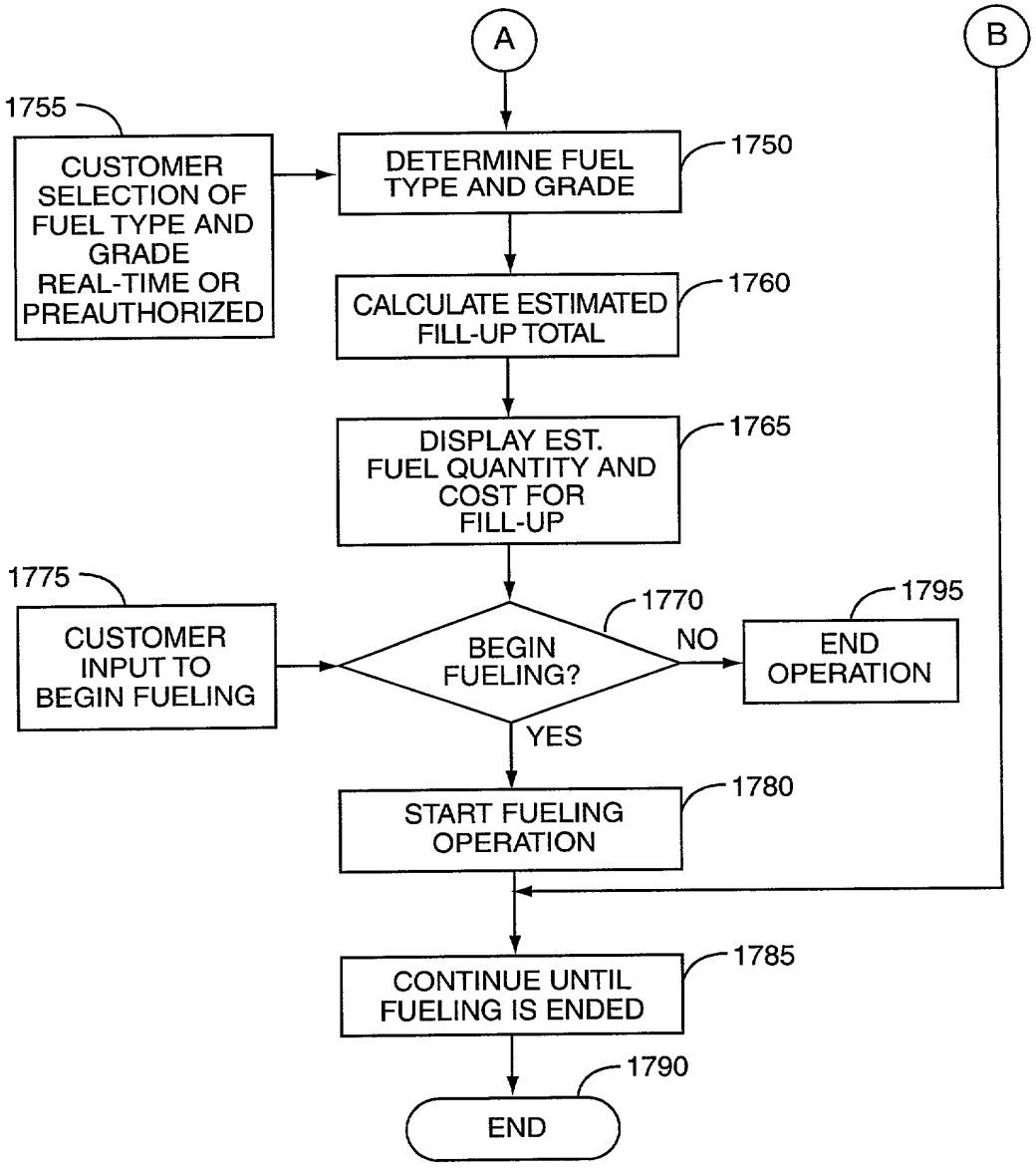
A
B
1755
CUSTOMER SELECTION OF FUEL TYPE AND GRADE REAL-TIME OR PREAUTHORIZED
DETERMINE FUEL TYPE AND GRADE
1750
CALCULATE ESTIMATED FILL-UP TOTAL
1760
DISPLAY EST. FUEL QUANTITY AND COST FOR FILL-UP
1765
1775
CUSTOMER INPUT TO BEGIN FUELING
BEGIN FUELING?
1770
NO
1795
END OPERATION
YES
START FUELING OPERATION
1780
CONTINUE UNTIL FUELING IS ENDED
1785
1790
END

FIG. 29B

ULLAGE BASED CASH ACCEPTOR CONTROL

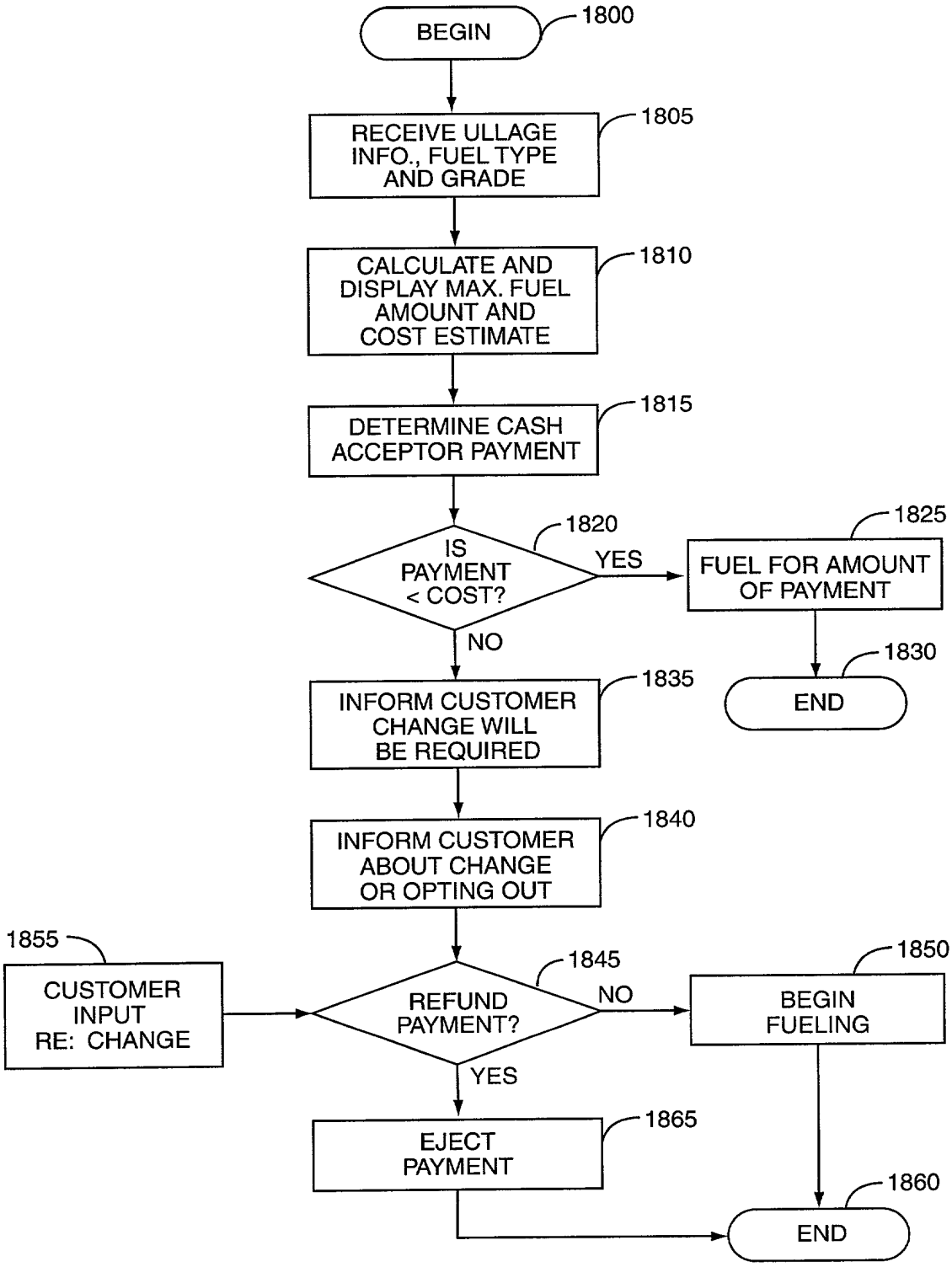

FIG. 30